AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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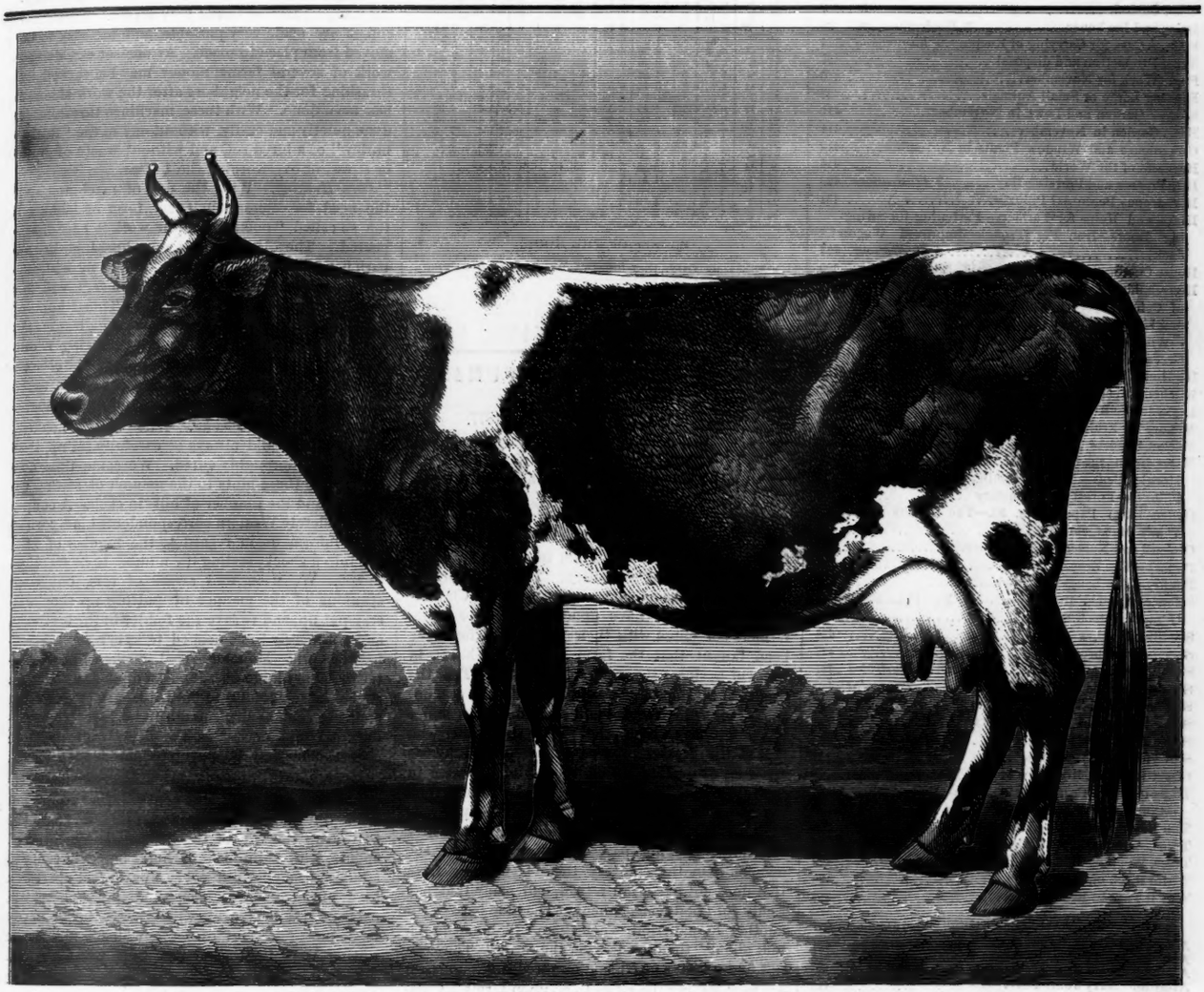


GRADE JERSEY COW "UNION."—BRED BY THOMAS FITCH, NEW LONDON, CONN.

Occasionally we come across or hear of an extra good cow, and several such have been from time to time mentioned in the *American Agriculturist*. We shall be glad to hear of still others, and to receive photographs of them to place in our gallery of pictures of noteworthy animals. We have given numerous portraits of choice thoroughbred, herd book animals of different breeds, but it by no means follows that *all* herd book cows are choice ones, nor that all others are inferior. The best animals for common use, whether for milk, butter, or meat, are grades. But there could be no grades if it were not for pure bred stock; therefore, as every body cannot breed pure animals, the business must be divided, and a few must raise pure breds, to supply the majority with breeding animals for the production of grades. Whenever we come across an excellent grade, the merit of some choice pure bred is reflected, and if farmers would carefully select their best cows and breed them to good pure bred bulls from richly milking dams, their product of butter might be greatly increased without any unreasonable cost, or at a very small expense. Extra good cows are scarce and bring a high price for family use, and breeders who give their attention to the business cannot fail to be well rewarded for their enterprise. To be a successful breeder needs tact and experience, but for the encouragement of those young farmers who desire to excel in this way, we cite an example of a successful breeder of high milking grade family cows, and give a portrait of one of his animals. The breeder referred to is Mr. Thomas Fitch, of New London, Conn. Through a long and active life he has been engaged in breeding choice cows, both pure bred for breeders uses, and grades for family use. His experience is, therefore, very extensive. In sending the portrait reproduced above, which is of a grade Jersey and Ayrshire, he writes: "This cow has given 16 quarts of milk per day, and has made 11¼ lbs. of butter per week. The largest yield of milk and butter I ever knew of, was from such a grade, owned by me some years ago. She was "Lady Paterson," lived more than 24 years, had 15 heifer calves in succession, and when 15 years old made 17¼ lbs. of butter in one week, besides supplying the milk and cream used in a large family. My rule is to select only the calves of the best milking cows, such as have quiet dispositions, and to cross them with the best Jersey bulls." Mr. Fitch having long been in this business is always supplied with materials for his purpose, and few breeders have raised a larger number of valuable cows than he has. The results of his experience are, that for all practical purposes, whether on the farm, or in the dairy, or for the family, the grades are the most desirable for constitution, size, form of udder and teats, are most productive of milk, cream, and butter, and last but not least, they have beauty of appearance and gentleness of disposition.

Contents for November, 1877.

Among the Farmers, No. 22.—Green Manures—Southern Cow Peas—A Horse Farm—Doct. Agnew's System—A Hay Barn 422
Barn, Plan for a Dairy ..... 2 *Illustrations*..425
Bee Notes for November 417
Blundering from European Practice 430
Boat-House, How to Build ..... 2 *Illustrations*..424
Boys and Girls' Columns.—Puzzle Picture—Doctor's Correspondence, Ornamental Spruce Work; Polishing Powder—Aunt Sue's Puzzle Box—Metric System of Weights and Measures—The Little Runaways—Aunt Sue's Chats—About Dragon Flies...5 *Ill*..433-436
Cattle—Grade Cow ..... *Illustrated*..409
Cattle—The Herefords ..... *Illustrated*..421
Cruel Custom 417
Dairy and Ice-house ..... 3 *Illustrations*..425, 426
Eggs, A Case for Carrying or Keeping.2 *Illustrations*..424
Eggs, Production and disposal 421
Farm Work for November 410
Feeding Large or Small Animals 427
Flower Garden and Lawn in November 412
Fruit Garden in November 411
Greenhouse and Window Plants in November 412
Harvests of the World 416
Hay Presses and Pressing Hay ..... 5 *Illustrations*..428
Herbaceous Perennial Phloxes 431
Hints and Helps for Farmers—Fasteniug for Swinging Doors—Iron Pig Trough—Improved Wagon Jack ..... 4 *Illustrations*..424
House Costing $400 or $500 ..... 4 *Illustrations*..420
Household Department—Home Topics—Preparation of Coffee—Café au Lait—Browning Coffee—Coffee and Health—Kitchen Dresses—A Simple Ash Sifter—Window Transparency—Scroll or Bracket Saws—Green Corn and Pickles 3*Illustrations*. 431-433
Ice House in a Barn ..... 2 *Illustrations*..425
Kitchen and Market Garden in November 411
Leaks in the Barn 427
Manure for Fruit Trees 431
Market Reports 412
Notes from the Pines—Mr. Sargent's Grounds—A Mosaic Bed—Young Conifers—Mr. Parkman's Phloxes—Forest Hill Cemetery 430
Ogden Farm Papers, No. 93.—The Results of Ten Year's Management 418
Orchard and Nursery in November 411
Poultry—The Bronze Turkey 427
Poultry—The Langshan Fowl 427
Science Applied to Farming, No. 35.—Potash—The German Potash Salts 417, 418
Seedling Peaches 431
Sheep, Cross-bred 427
Sheep, the Oxford-Downs ..... *Illustrated*..421
Shrubs, The Bladder Senna ..... *Illustrated*..429
Skimmed Milk, The Trade in 426
Small Evergreens for Small Places 429
Stack Yard, How to Arrange ..... 2 *Illustrations* .427, 428
Stove for a Poultry House ..... 2 *Illustrations*..424
Sweet Potatoes, House for Storing ..... 2 *Illustrations*..425
Talks on Farm Crops, No. 9.—Rape—Mangel Wurzels—Corn-fodder—Apples 423
Tim Bunker on the Canning Factory 419
Trees, A Remarkable Collection 416
Trees, Weeping Hemlock ..... *Illustrated*..429
White Birch on Poor Land 425
Why it Pays to Read 417

INDEX TO "BASKET," OR SHORTER ARTICLES.

Adamant Plow 442
Ag'l. Engine Trial 414
Alpine Flowers 414
Army and Navy Journal. 416
Autumn Hort. Show 416
Borrowing to Buy a Farm 414
Brahmas for Eggs 443
Buckwheat Bran 443
Butter Factory 414
Catalogues Received 442
Chestnuts, Keeping 442
Colorado Mountaineer 414
Concrete Houses 414
Cool Setting of Milk 414
Cost of Wheat 443
Egg-Eating Hens 443
Fairs of 1877 416
Fall Plowing 415
Fodder Cutter 443
Food Steamer 415
Game Laws of Pa 414
Georgia Hort. Society 441
Grape, Lady Washington 442
Grasses and Soils 442
Grasses Named 441
Hamstrung Horse 415
Improved Plows 414
Incubators, Use of 414
Kansas Hedge 416
Ladies Shoes 415
Land for Sale 415
Large Shipments 413
"Maize Cobs" 441
Nails in Stomach 416
New Hay in Barn 443
Newspaper Horticulture. 441
N. Y. State Fair 416
New Zealand Flax 442
Oats 415
Orange Marmalade 442
Paralysis in Pigs 443
Parasite on Owls 442
Pigs, The Best 415
Preparing Brine 442
Produce of Cow 415
Pollen, Keeping 442
Popular Science Monthly 441
Postage Stamps, Sending 414
Poultry-house, Clean 414
Pure Ground Bone 413
Reports of Societies 443
Ringbone 414
Scroll Sawyer 442
Sewing Machines 443
Sheep in Colorado 443
Sick Hog 414
South. Cal. Horticulturist 441
Southern Emigration 415
Sportsman's Gazetteer 414
Squashes, large 442
Sundry Humbugs 414
The Microscope 414
Tile Making 415
Tomato Worm 441
Warts, Removing 443
W. C. Flagg's Illness 413
Western Cattle Men 443
Wheat for Name 415
Wheat Growing States 442
White Specks in Butter 415

Calendar for November.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Moon rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Moon rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Moon rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	T	6 31	4 53	2 1	6 31	4 56	2 2	6 28	5 0	2 3
2	F	6 33	4 52	3 18	6 32	4 57	3 16	6 29	4 58	3 15
3	S	6 36	4 51	4 33	6 33	4 54	4 31	6 30	4 57	4 29
4	S	6 38	4 50	5 51	6 31	4 53	5 47	6 31	4 56	5 44
5	M	6 39	4 48	sets	6 36	4 52	sets	6 32	4 55	sets.
6	T	6 40	4 47	5 15	6 37	4 51	5 22	6 33	4 54	5 30
7	W	6 42	4 46	6 5	6 38	4 50	6 12	6 34	4 53	6 19
8	T	6 43	4 45	7 1	6 39	4 49	7 9	6 36	4 52	7 16
9	F	6 44	4 44	8 5	6 41	4 48	8 11	6 37	4 51	8 19
10	S	6 45	4 43	9 10	6 42	4 47	9 16	6 38	4 51	9 21
11	S	6 47	4 42	10 15	6 43	4 46	10 19	6 39	4 50	10 24
12	M	6 48	4 41	11 18	6 44	4 45	11 22	6 40	4 49	11 25
13	T	6 49	4 40	morn	6 45	4 44	morn	6 41	4 48	morn
14	W	6 50	4 39	0 20	6 46	4 43	0 22	6 42	4 47	0 24
15	T	6 51	4 38	1 22	6 47	4 42	1 22	6 43	4 46	1 23
16	F	6 53	4 37	2 23	6 49	4 41	2 22	6 44	4 45	2 22
17	S	6 54	4 36	3 26	6 50	4 40	3 24	6 45	4 45	3 23
18	S	6 55	4 36	4 32	6 51	4 40	4 29	6 47	4 44	4 26
19	M	6 57	4 35	5 42	6 52	4 39	5 37	6 48	4 43	5 31
20	T	6 58	4 34	rises	6 53	4 38	rises	6 49	4 43	rises
21	W	6 59	4 33	4 45	6 55	4 38	4 52	6 50	4 42	4 58
22	T	7 0	4 33	5 39	6 56	4 37	5 48	6 51	4 41	5 56
23	F	7 2	4 32	6 48	6 57	4 37	6 55	6 52	4 41	7 2
24	S	7 3	4 32	8 3	6 58	4 36	8 8	6 53	4 41	8 14
25	S	7 4	4 31	9 20	6 59	4 36	9 25	6 54	4 40	9 29
26	M	7 5	4 31	10 36	7 0	4 35	10 39	6 55	4 40	10 42
27	T	7 6	4 30	11 51	7 1	4 35	11 52	6 56	4 40	11 54
28	W	7 7	4 30	morn	7 2	4 34	morn	6 57	4 40	morn
29	T	7 8	4 29	1 3	7 3	4 34	1 4	6 58	4 40	1 4
30	F	7 9	4 29	2 17	7 4	4 34	2 16	6 59	4 39	2 14

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
New M'n	5	3 55 mo.	3 43 mo.	3 31 mo	3 19 mo.	2 49 mo.
1st Quart	12	7 0 ev.	6 48 ev.	6 36 ev.	6 24 ev.	5 54 ev.
Full M'n	20	5 35 ev.	5 23 ev.	5 11 ev.	4 59 ev.	4 29 ev.
3d Quart.	27	5 22 ev.	5 10 ev.	4 58 ev.	4 46 ev.	4 16 ev.

AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1877.

We are rapidly approaching better times. Already business is improving, and there is a promise of an era of prosperity. Although "the melancholy days" of autumn are come, everything conspires to encourage us. We have had a fine season for fall sowing, and our grain has gone into the ground in the best condition. The fall work is generally ahead, and every farmer is busy. Circumstances generally, have greatly tended to make farmers contented with their position. They have been taught that the farm is a secure haven in times of business storm and disturbance. That the profits of farming, if not large, are safe and certain. In Nevada, where farms and gold and silver mines lie contiguous to each other; it is the farmer who makes the greater profit, for it is proved by the statistics of the State, that the capital invested in farms yields a better and more regular return, than does that employed in the mining the precious metals. For one paying gold mine, there are fifty that either do not pay, or that totally ruin the owners. On the contrary, there is not one farm that does not pay a fair return, and many that pay richly for good management. The time is past, for another long period, when there will be so much talk about "the boys leaving the farm." They can not find a better place, and hundreds of young men are now leaving the cities to go upon farms. Comfort and happiness will, as in the past, dwell with the frugal and industrious, and in the history of the world the most notable instances of private and public virtue, have been found amongst those whose lives have been simple, unpretentious, and laborious. The first battle of the Republic was fought by farmers, and its great sustaining power will always consist of the farmers first, who are the most numerous class of citizens, and after them the intelligent artisans, mechanics, and other industrious workers. There are other classes who are equally useful, but being in a great minority, thus exert a less influence. But the farmer who feeds the world, and those who house and clothe it, must always exert a preponderating influence in proportion to the intelligence they possess, and the skill with which they perform their several labors.

Hints for Work.

Fall Plowing.—Don't let the plow rust in the furrows. So long as there is any plowing to be done, let it be done at once, and as soon as finished, clean off the plow, grease, or lime-wash, the moldboard and share, and put it away in the tool shed.

Gather up all the tools, clean them, coat the wood work with crude petroleum, or some common lead and oil paint, and store them in their proper places. Tools will last twice as long if thus kept.

Prepare for Winter.—Whatever preparation is needed for winter, should be be begun now, or before snow falls. A little foresight saves much trouble.

Stacks should be well protected, and the coverings repaired, if necessary, (see article on page 427). Store a sufficient supply of fodder and litter in the barn, and over the stables and sheds for present use.

Thrashing.—A two-horse tread-power and thrashing machine mill be found very useful. These machines are made very portable, and are easy to be moved from place to place. As one set can do the work of several farms, money may be earned by thrashing for the neighbors after the work at home has been done. With these machines thrashing is done quietly and easily, without any of the "hurly-burley" of a hired set, and without waste of grain or straw, or overworking the horses.

Corn-Husking.—With the use of machines, and the need for economy in every form of labor, all the so-called "poetry of farm work" has disappeared. The old-fashioned corn-huskings in the barn will soon no more be held, and, along with the old-fashioned festive "harvest homes," will be soon only remembered in story. These homely frolics must give way to more sedate and less costly labor, and now the sooner the corn-husking is out of the way, the better. The fields should be cleared at once, and when everything is under cover, there will be time for more comfortable frolicking indoors.

Take care of the Fodder.—When corn is husked, the fodder should always be carefully set up, if it is not yet thoroughly cured. We some time ago referred in these hints to the manner of setting up shocks, and the number of hills in each. A couple of considerate Western correspondents kindly wished to inform us in regard to the number of hills put into a shock, stating the number to be from 144 to 256. We were well aware of this, but were speaking of the manner of putting up shocks to stay put up, and to save the fodder in the best way, and not merely to be heaped together for harvesting the corn. Moderate-sized shocks will cure better than very large ones, and 25 or 49 hills make a shock large enough to bind. House or stack the stalks as soon as dry enough to be safe from mildew. While drying in the field, four or more corn shocks may be put into one fodder shock.

Roots that have been gathered, should be made secure in the pits before the cold weather comes on. Look out that there is ample ventilation from the bottom to the top of the heaps. Three-cornered spouts, with a number of holes bored in each, to admit air, may be put every 8 or 10 feet apart in a long pit, or one for each small pit. These will carry off the heated air which arises in all newly made pits of any sort of roots, which would cause rotting were its escape not thus provided for.

Roots that have not been harvested, may be suffered to grow so long as the weather is mild. Late turnips will make considerable growth now, during the cool weather. As soon as one or two sharp frosts have occurred, these late crops may be taken up; but this is not likely to happen, unless in far northern localities, until the end of the month.

Frozen Leaves are injurious to cattle, and should not be given to them, but carted to the compost heaps.

Horses should be provided with blankets for use when exposed to storms. These may be procured very cheaply, and their cost will be saved more than once or twice during the winter. We do not approve of using blankets in the stable, however cold the weather may be. This practice makes the horse more sensitive to cold when brought out. Blankets are for use only to protect against unusual exposure, and when the horse is warm.

Winter rations for a work horse, may now be given safely. Our practice is to mix half a bushel of cut hay or fodder, with 3 pounds of feed of oats, corn, and bran ground together, for one feed for each

horse. The cut hay is thoroughly wetted in a box; the meal is scattered over it; a handful of salt for each horse is added, and the whole is well mixed with the shovel. It is then divided equally. A similar custom prevails in large stables, where hundreds of animals are kept; for economy and good results in every way, it can hardly be surpassed.

Live Stock.—For hints regarding the management of the stock, refer to last month. If it is remembered that an animal which begins the winter in good condition, is kept so more easily and cheaply, and will come out better in the spring, than one which begins it in poor order, and if this rule is acted upon, few mistakes will occur.

Salt should be given regularly; it is a very effective preventive of disease; but it should be given moderately. One ounce for a horse, ox, or cow, and one dram for a sheep or a pig, is a good daily allowance. It is only safe to trust to any animal's instinct to choose its own supply, when salt is kept constantly before it; otherwise, in its greediness, it will be apt to take too much. Taken in excessive quantities, salt is an acrid poison.

Lights in the barn should be carefully used. Nine-tenths of the fires which occur, are caused by carelessness. Never light a lamp in the barn. If many lights are used, have an outhouse, which stands by itself, kept expressly for the supply of oil, and the filling and trimming of the lamps, and let no light ever be used in it. Only a perfectly safe oil, that will not explode if the lamp or lantern is upset, should be used; and the oil should be kept in tin cans with a safe method of drawing it, by a tap, or one of the patent nozzles used by the best oil makers. A case of such cans or single cans of oil, can be procured of any dealer in the country who keeps Devoe's or Pratt's oils.

Rules for Health for animals, are very simple and plain, and need strict observance at this season. Observe perfect cleanliness in stable, yard, barnyard, and all their surroundings; keep the skin clean; use only clean water for drinking; keep the body and the lodging places dry, and not too warm; let them breathe only pure air; eat only nutritious and digestible food, and not too much of that; keep them quiet, and do not suffer them to be irritated; avoid exposure to cold, wet storms, and if this can not be helped, dry the skin, using considerable friction, with a coarse cloth, then cover with a blanket, but not before, and give a warm drink as soon as possible after it. When the system is feverish from cold, give a saline cooling laxative.

Notes on Orchard and Garden Work.

To a large share of our readers November is the month in which the out-door labors of the year are brought to a close. These, and those also in a milder climate, will find occupation in caring for the products of their orchards and gardens. One of our most successful market gardeners says that he can teach any one to raise as good crops as he himself does, but he can not teach another how to convert the crops into money. In our Notes we have little to say about the selling of produce—and that, all will agree, is one of the important points. The marketing of fruits and vegetables will be so modified by one's locality and surroundings, that no general advice can be given. While it is better for one man to sell his apples, onions, carrots, or other crops as soon as harvested, another will find it more profitable to store his produce and sell it in small lots through the winter. These are matters which each must consider for himself—and they are of sufficient importance to demand a careful consideration. Another point about marketing—growers are too apt to overlook small markets near home, and to send their produce to the large cities where, though prices may rule higher, the expenses are much greater, and the net returns are likely to be less. Wherever mild weather prevails, much of the work suggested in the Notes for October, will be timely now, and these should be consulted.

Orchard and Nursery.

In advising fall planting, we have at the same time pointed out the conditions of climate and soil necessary to success. By no means plant trees where the ground is already partly frozen, or where it is likely to soon freeze for the winter. If trees are received, and the conditions are not favorable, it is better to heel them in, as directed last month. On the other hand, there are many localities in which trees may be advantageously set this month.

Young Trees, whether planted this fall or last spring, will be benefited by having the earth drawn to them, in the shape of a mound or cone, 12 to 18 inches high. The soil should be free from sods or litter, be compacted firmly to prevent washing by rains, and the surface made smooth. A mound of this kind will protect the trees from mice, and be of great service to those newly planted, in enabling them to resist the action of the wind.

Mice often greatly injure young trees; the mound above advised will protect them, except when the snow forms a covering under which they can work, and attack the tree above the mound. In this case, and with all trees small enough to be injured by them, the snow should be trampled down firmly after each fall. Of course it is trouble, but not near so much as to plaster and patch injured trees in the spring, and those who will not take the "trouble," should not plant fruit trees at all.

Rabbits are also to be guarded against. The old advice to shoot a rabbit, cut it open and rub the trees with the flesh, is good; it is founded upon the distaste of the rabbit for all animal food, but the end is accomplished in an easier manner. Where blood is obtainable, the trunks of the trees are spattered or smeared with it, by means of a swab made by tying a few corn husks to a stick. Some rub the trees with a piece of liver for the same purpose. Tarred paper tied around the trunk, or corn stalks, or pieces of lath set side by side, and bound on by a piece of annealed wire, are effective, but hardly so practicable when the trees are numerous.

Keeping Fruit.—The conditions required are a uniform temperature, as low as may be without freezing, and dryness. The cellar of the house should not be used for storing large quantities of fruit, if it can be avoided, and if used, there should be ample ventilation, to carry off the carbonic acid, given off by the fruit in ripening. The temperature of 35° to 40° is best, and when the thermometer shows above 40°, the outer air, if colder, should be admitted. Apples, properly picked and barreled, need not be disturbed until wanted for use or sale. Store pears in boxes or drawers, where they may be occasionally inspected, as they often ripen unevenly.

Cider of the best quality is usually made this month, as the low temperature allows the fermentation to go on very slowly.

Fences and Gates are to be looked to, and made all tight and snug for the winter.

Stocks for root-grafting should be taken up, and put in the cellar, either heeled-in with earth, or set in boxes, with the roots covered in the same manner,

Cions may be cut at any time after the leaves fall—the sooner the better. Label carefully, and preserve in a cool place in sand or sawdust.

Surface Drains should be made, to carry water away from nursery rows, from young orchards, or wherever pools of water show them to be needed.

Fruit Garden.

The care to be given currants, gooseberries, raspberries, and blackberries at this season, was mentioned last month. Cuttings of currants and gooseberries may still be put in, if the ground is open.

Blackberries and Raspberries multiply by suckers, which may be taken up, and set where they are to grow; but this is not rapid enough for nurserymen, who multiply them by root-cuttings, and though the plants thus raised are smaller, they are much better than suckers, as they have more abundant roots. Nurserymen grow them in large quantities in a regular cutting bench, with bottom heat, but the amateur and others, who need but a few, can raise them without artificial heat. The roots must be secured before the ground freezes. Take up the needed plants with all the roots belonging to them, and cut up all the roots, from the size of a lead-pencil, to half that size, or less—no matter how much larger—into pieces one to three inches long—the smaller, the longer. Have ready a box—such as a common soap-box—in the bottom of which are several inch holes, put some straw or moss on the bottom, then an inch or so of light sandy soil, or sand, put on a layer of root cuttings, then a layer of soil or sand, another layer of cuttings, alternating until the box is full. Put on the cover, and bury the box in a dry place, where water will not stand, below the reach of frost; see that the box is well covered, and the earth rounded off, and it will be well to lay over some old boards, to keep off excessive rains. When opened in the spring, the roots will be found callused, furnished with buds, and all ready to grow when planted out.

Pears in the fruit-room need frequent inspection. In our own experience all the earlier varieties have matured from a week to ten days earlier than usual; should this be the case with the later kinds also, great care will be needed. Extra fine specimens of Beurre d'Anjou, Beurre Clairgeau, and other showy varieties are sent to market in boxes containing a single layer of selected fruit, each specimen wrapped in soft white paper.

Grapes, to keep, must be of keeping kinds, and treated as directed last month. Those having small quantities, and no fruit house, can succeed fairly by placing them in a dry and cool cellar, or in a chamber that can be kept cool by opening the windows, and in which a little fire may be made, should there be danger of freezing the fruit.

Grape Vines.—The pruning should be finished up before cold weather comes, if possible. We can add nothing to the Notes of last month. Every one who would treat his vines properly, should have a work on the subject. The manner of growth being well understood, any intelligent person can prune his vines, each according to its needs. All the wood that is to be used for propagation, should not be allowed to dry, but be made at once into cuttings, and tied in bundles, which are to be covered with sand or light soil in a cold cellar.

Strawberries are to be covered when freezing weather sets in; it will do no harm to wait until the surface is frozen. Straw and salt-hay are the best materials, corn-stalks or leaves will answer.

Kitchen and Market Garden.

Should the present be a mild month, nearly all of October's Notes will be seasonable now, and we avoid repetition by referring to them. We especially commend, with emphasis, that portion of the general introduction under "Notes on Orchard and Garden Work," that refers to doing *spring work*—or that which is generally and worse than uselessly left until spring—*now*.

Parsnips, *Horseradish*, *Salsify*, and *Scorzonera*, being perfectly hardy, and mostly improved by freezing, are usually in part left in the ground until spring. Sometimes they may be dug during a mild spell in winter, but it is not safe to trust to the occurrence of this, and enough for family use during the winter, should be taken up before the ground freezes. If a digging can be made during the winter, then those lifted now will, except the horseradish, be acceptable to the cow. See what was said last month of the preservation of

Roots in Pits, and on keeping those for daily use. On a farm where there is a root-cellar, there is but little trouble with the roots for the kitchen.

Asparagus Beds.—Though the plant is perfectly hardy, it will come earlier and stronger if the bed is well covered; this is not practised in field culture, but in the kitchen garden it is well to put on four inches or more of coarse, littery manure.

Rhubarb.—If the ground is still open, and new plantations are desired, it is better to make them now than in the spring, as it starts so early that the buds may be injured if left until then. Set 3 or 4 feet apart each way, according to the variety, and give each root an abundance of manure at setting. If it is desired to force rhubarb for winter or very early spring, the roots must be taken up before the ground freezes. Keep in a box of earth until it is desired to start them. Put a root in the bottom of

a barrel, with earth enough to cover it, and place in a cellar where there is a furnace, or in a corner of the kitchen, and stalks will soon push. Those who have greenhouses may force them under the stages. Do not at any time allow the roots to get dry.

Spinach in the climate of New York is oftener injured than helped by covering, as so much is put on as to cause decay. Still we prefer to cover, taking care that the straw or marsh hay is very thin over the plants. It should not be covered until next month in this latitude.

Cabbages should be left as late as may be, without being exposed to very heavy "black frosts." No better mode of keeping is known than the rough one of laying them head down, and merely covering the leaves with earth. On the large scale they are put down in beds 8 feet wide, and as long as convenient, the soil turned to them with a plow, and the covering finished with a spade. For family use they may be set in a trench, the stems being covered with earth, the heads covered with straw or leaves, and later, old boards put over to shed the rain. All covering should be kept off until real freezing weather is at hand.

Soft Cabbages, or those that have imperfectly headed, may be utilized by a little trouble, and be very acceptable next spring. A trench is dug, of convenient width, and deep enough to hold the cabbages when set out in it, so that their heads will be below the surface of the ground. Some of the top soil is thrown into the trench, and the soft heads set in this as close as they will stand. The trench is covered with boards, arranged to shed rain, and over this a covering of litter. The ends are kept open for ventilation, until really cold weather, when they are covered, and earth put on over the whole. We have seen cabbages, soft and worthless when put in, come out of the trench hard, crisp, and well flavored as could be desired.

Celery, after being banked up with earth to its full hight, may be left there if covered with sufficient leaves or litter to keep it from frost. But it is usually placed in trenches 8 or 10 inches wide, and as deep as the plants require. The celery is set in as close as it will stand, and when cold weather comes, it is gradually covered with leaves or litter, until the covering is 6 or 8 inches thick. We find that laying boards over this, makes it more convenient to get at the celery in winter. For immediate use, or in small quantities for families, it may be placed in narrow boxes, not over 10 inches wide, and a little lower than the celery, and as long as desirable. A few inches of sand or earth are placed on the bottom of the box, and the celery stacked in it, the same as in trenches. The boxes should be in a cool cellar, for in a warm one growth will start, and the stalks become hollow.

Cold-Frames.—With novices the trouble is that they suppose cold-frames are for *growing* plants, while they are intended to keep them perfectly dormant all winter. There is more danger of killing by too much coddling, than of killing by freezing. In the climate of New York, they rarely require sashes at night until the end of the month, and none at all in the day time. If started into growth, they will be very sure to be injured by severe cold. When the thermometer is at 30° outside, the sashes are to be removed altogether, and even when as low as at 10° or 15°, the plants must be aired by tilting the sash at the upper end.

Flower Garden and Lawn.

The work here, as elsewhere, will be preparation for winter, and nearly all the most important matters are referred to in last month's Notes.

Keeping is a very comprehensive term, and includes whatever is needed for the neatness and good order of the grounds. In our mild autumns, especially when the snow holds off, the lawn and ornamental grounds generally, may be kept in an enjoyable condition. Even in absence of flowers, there should be an attractive variety of

Evergreens, in which there is not only a pleasing diversity of form, but of color, and these should be planted with reference to their winter effect. Between the dark green of the Yews, and the light color of *Retinispora plumosa aurea*, are intermediate shades that may be contrasted with excellent effect.

Bedding with Evergreens, as practised by Prof. Sargent, is described in "Notes from the Pines," (on page 430). This may be modified by those who will take the trouble, in a very pleasing manner, by keeping a set of evergreens in pots—subjects from a foot to four or five feet high. These are to be kept plunged during the summer, where they will be watered, if needed, and when a conspicuous bed on the lawn is cleared of its summer bedding stuff, it may be filled with these potted evergreens, and be a most attractive decoration, especially if placed in view from the windows of the living room. We have often referred to the

Golden Retinispora, or *Retinispora plumosa aurea*, which is an excellent plant for bedding effects. It may be grown from cuttings with the greatest ease—only give it time—adapts itself readily to pot culture, and whether as an edging less than a foot high, or a well formed plant of six or more feet, is simply charming. Its yellow is not so bright in winter, as in spring, but still of a sufficiently yellow color, to warrant the name "golden." Young Hemlocks, and the dwarf forms of Norway Spruce are cheap kinds that may be easily managed in pots.

Leaves should be raked up from the lawn, as besides their littery appearance, they are too valuable to be scattered by the wind, and carried perhaps to the public road, or to a neighbor's grounds. A good gardener can never have too many leaves.

Winter Protection is often overdone. We see now but little of the old bundling of half-hardy shrubs in an envelope of straw, put on as compactly, and wound around as tightly, as if the plant was to cross the ocean. Evergreen boughs, stuck around the plants, or in the absence of these, common pea brush, with marsh-hay worked in among it, will generally give sufficient protection, and avoid the loss from smothering that attends close covering.

Leaves or Litter may be put over the roots of plants of doubtful hardiness, and if leaves are used, they may be kept from blowing away by a mere sprinkling of earth.

Tender Bulbs and Roots should all be in a place of safety, and half-hardy plants lifted and placed in pots or boxes, to be put in winter quarters.

A Cellar, Pit, or Cave, one or the other, will serve in the place of a greenhouse for many plants used for summer decoration. The cellar should be only so warm as to avoid freezing, and if a pit is used, it should have ample drainage. We have seen an artificial cave, made in a hill side, answer admirably for wintering such plants as were to be kept in a dormant state and protected from frost.

Greenhouse and Window Plants.

Whole pages might be written on the management of greenhouse plants, and our limits allow us only to hint at the essential points needed to be observed by those who manage their own small greenhouse, or a few plants in the windows. One who has a greenhouse should have some standard work, such as Henderson's "Practical Floriculture," to aid him in the treatment of particular plants. Whether in the greenhouse or in the window, there should be a

Gradual Transition from free air to artificial heat, and all sudden changes avoided. Generally this month, while personal comfort requires a fire in the room, the plants do not need it, and it will be all the better if they can be kept at the window of a room without a fire, and where air can be given freely. While all should be ready to give fire-heat when needed, the plants in the greenhouse should be kept without it so long as it is safe to do so; by closing the house early in the afternoon, the temperature may be kept from going too low at night.

House Plants.—Dust, insects, dry air, and overwatering, are the principal difficulties they have to contend with. By arranging some light covering to put over them while the room is being swept, and an occasional syringing in the bath-tub, kitchen sink, or elsewhere, supplemented by sponging the leaves of all smooth-leaved plants, this great enemy to plant health may be kept under.

Insects may be mainly kept off by hand-picking and a brush; if needed, apply tobacco water, or arrange a box or barrel in which they may be thoroughly fumigated with tobacco smoke.

Dry Air can only be overcome by providing on the stove, or in the furnace, for the abundant evaporation of water. There are but few days in winter when fresh air from without may not be let into the room, for a while at midday, but a cold current should never fall directly upon the plants.

Over-watering kills more plants than dryness. Pots in the house, especially the handsome glazed ones, should be provided with abundant drainage—broken pots, cinders, oyster-shells, anything to make an open layer at the bottom; then a layer of moss, to keep the earth from washing down, and then a soil made so open by sand that it will always allow the water to pass through. With these precautions there is no danger, but where the surface of the soil is muddy an hour after watering, there is something wrong, and plants will not thrive.

Plants taken up from the garden, should have time to rest and recover, and need at first very little water. Those to be forced, such as Deutzia, Perennial Candy-tuft, and others, had better remain in a cool cellar or a pit until January.

Bulbs for forcing, if not already potted, should be put in at once, as they need to be kept dark and cool for 6 or 8 weeks to form roots and give a strong bloom.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Oct. 12th, 1877, and for the corresponding month last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th	403,000	4,118,000	3,419,000	329,000	974,000	1,107,000
27 d's *last* m'th	315,000	3,104,000	3,763,000	201,000	107,000	1,214,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th	441,000	5,913,000	4,851,000	437,000	353,000	1,329,000
27 d's *last* m'th	369,000	5,476,000	5,649,000	374,000	91,000	1,349,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1877..	403,000	4,118,000	3,419,000	329,000	974,000	1,107,000
26 days 1876..	327,000	2,211,000	3,714,000	185,000	384,000	1,503,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1877..	441,000	5,913,000	4,851,000	437,000	353,000	1,329,000
26 days 1876..	359,000	2,189,000	3,821,000	167,000	178,000	1,419,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
Oct. 8, 1877..	283,698	2,975,828	28,526	69,046	881,326	370,166
Sept 10, 1877..	247,808	2,049,885	37,251	24,409	723,478	359,181
Aug. 6, 1877..	162,325	320,094	22,615	11,595	576,090	252,869
May 7, 1877..	761,686	468,809	193,046	174,375	347,881	291,654
Feb. 7, 1877..	3,063,819	2,302,261	374,142	671,114	956,114	388,605
Jan. 8, 1877..	3,668,010	3,077,504	341,750	905,615	1,088,104	425,406
Dec. 11, 1876..	3,110,283	3,385,554	318 841	873,310	1,182,322	512,041
Aug. 7, 1876..	2,831,299	904,557	94,960	53,914	1,232,895	434,208
Apr. 10, 1876..	3,393,074	232,140	68,429	200,381	766,282	436,942
Jan. 10, 1876..	5,802,293	663,982	100,741	325,191	1,080,300	307,438

4. *Exports from New York. Jan. 1, to Oct. 10.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
1877.	1,005,215	10,620,802	18,982,240	1,632,309	80,237	156,940	190,792
1876.	1,517,090	20,121,369	14,245,477	816,474	39,392	460,481	470,830
1875.	1,442,211	20,631,499	10,760,680	154,510	225	104,323	240,832

5. *Tide-water Receipts at Albany, from opening of navigation to Oct. 8th:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
1877..	7,500	4,021,800	18,342,400	709,200	839,300	2,309,800	518,300
1876..	19,800	8,690,100	7,775,700	491,120	396,600	2,231,400	560,600
1875..	77,600	13,459,200	6,668,300	102,000	551,400	1,365,200	596,300

Gold has been up to 104, and down to 102⅜@102½ on Oct. 9, closing Oct. 12, at 103, as against 103¾ on Sept. 12; 105¼ on Aug. 11; 105⅜ on July 12; 104⅞ on June 12; 107¼ on May 12; 105⅞ on April 12; 104⅝ on March 12; 106 on January 12; and 111⅛ on the 14th of August, 1876. ....The business in Breadstuffs has been quite brisk, during the month under review, and values, on the whole, have been very well supported, all the circumstances considered, especially in view of the freer arrivals from the interior, and the depression in gold. The export movement has been on a more liberal scale, in Flour, Wheat, and Corn, particularly in Flour and Wheat; and has been fair also in Rye. Barley and Oats have likewise been in request for shipment to Europe. Barley, mostly of Canada product, for the English market; and Oats for England and France. Manipulations of the Wheat market, in connection with September and October contracts, especially for New York No. 2 Red, in the interest of speculative operators, seriously impeded legitimate trading. At the extreme close, the advantage as to prices was rather in favor of purchasers....Cotton has been more freely dealt in, and has been quoted dearer, though leaving off somewhat weaker....Provisions attracted more attention, for home use and export, at stronger but irregular prices....Hay, Hops, and Seeds,

have been selling more freely, but at lower rates, seed values showing unusual depression. Important shipments of Hops have been made to England on consignment, for account of producers, chiefly from New York State, with the hope of realizing more satisfactory prices abroad than can be obtained in the home market.... Wool has been more sought after, and has shown more firmness....Tobacco has been in fair request at steady figures....Naval Stores and Petroleum weaker, on a slower movement... Groceries less active; Coffee cheaper; Sugar and Teas firmer, and Molasses higher....Ocean freights have been fairly active, and higher generally, though closing easier....Grain rates by steam to Liverpool closed on the 12th of Oct. at 9@9¼*d.*; to Glasgow at 8¾@9*d.*; to London at 8¼@9*d.*; to Liverpool, by sail, 8¼*d.*; London, by sail, 8¼*d.*, per bushel. Flour to Liverpool, by steam, 3*s.* 3*d.*, @ 3*s.* 6*d.*; London, by sail, 2*s.* 9*d.*, and by steam 3*s.*; Bristol, by steam, 3*s.* 6*d.* per bbl. Provisions by steam to Liverpool, 35*s.* @ 45*s.* per ton; Cotton by sail ¼*d.*, and steam at ¼ @ $^{5}/_{16}$*d.* ℔ lb. Grain, by sail, for Cork and orders, at 6*s.* 9*d.* @ 7*s.* 1½*d.*, and to Continental ports, 7*s.* @ 7*s.* 3*d.*; Italian ports, 6*s.* 9*d.* @ 6*s.* 10½*d.* per quarter.

CURRENT WHOLESALE PRICES.

	Sept. 12.			Oct. 12.		
	103 2-8			103		
PRICE OF GOLD						
FLOUR—Superior to Extra State	$4 85	@	6 35	$5 15	@	6 35
Super. to Extra Southern	4 90	@	8 75	5 15	@	8 75
Extra Western	5 60	@	10 00	5 75	@	10 00
Extra Genesee	6 25	@	7 75	6 35	@	7 75
Superfine Western	4 85	@	5 50	5 15	@	5 65
RYE FLOUR	3 75	@	4 75	3 75	@	4 65
CORN-MEAL	2 65	@	3 50	2 60	@	3 50
WHEAT—All kinds of White	1 38	@	1 58	1 40	@	1 58
All kinds of Red and Amber	1 10	@	1 48	1 15	@	1 50
CORN—Yellow	59	@	62	60	@	—
Mixed	53	@	59½	58	@	60
White	60	@	65	65	@	68
OATS—Western	31	@	44	31	@	42
State	35	@	44	35	@	44
RYE	68	@	85	68	@	80
BARLEY	70	@	1 05	70	@	95
BARLEY MALT	75	@	1 30	75	@	1 25
HAY—Bale, ℔ 100 lbs	60	@	95	40	@	85
STRAW, ℔ 100 lbs	40	@	65	35	@	65
COTTON—Middlings, ℔ lb	11¾@		11¾	11¾@		11¾
HOPS—Crop of 1877, ℔ lb	10	@	15	8	@	13
" old, ℔ lb	2	@	9	2	@	7
FEATHERS—Live Geese, ℔ lb	38	@	48	40	@	50
SEED—Clover, ℔ lb	9¾@		10¾	8½@		8¾
Timothy, ℔ bushel	1 50	@	1 55	1 40	@	—
FLAX, ℔ bushel	1 50	@	—	1 40	@	1 45
SUGAR—Refi'g & Grocery ℔ lb	7¼@		9¾	7½@		9¾
MOLASSES, Cuba, ℔ gal. 50 test	33	@	—	—	@	38
New Orleans, new crop, ℔ gal	37	@	50	40	@	56
COFFEE—Rio (Gold)	16½@		20¾	16	@	20
TOBACCO, Kentucky, &c., ℔ lb	5	@	15	4½@		15
Seed Leaf, ℔ lb	4½@		50	4½@		50
WOOL—Domestic Fleece, ℔ lb	28	@	53	28	@	55
Domestic, pulled, ℔ lb	30	@	37½	30	@	38
California, spring clip	13	@	30	13	@	31
California fall clip	10	@	23	10	@	25
TALLOW, ℔ lb	8	@	8¾	7¾@		7¾
OIL-CAKE—℔ ton	33 50	@	—	33 00	@	33 50
PORK—Mess, ℔ barrel	13 40	@	13 50	14 35	@	14 45
Extra Prime, ℔ barrel	10 00	@	10 50	10 00	@	10 50
BEEF—Extra mess	Nominal.			13 00	@	14 00
LARD, in trcs. & bbls, ℔ 100 lb	7 50	@	10 00	7 00	@	9 75
BUTTER—State, ℔ lb	14	@	27	15	@	35
Western, poor to fancy, ℔ lb	12	@	27	14	@	35
CHEESE	5	@	13¾	5	@	13¾
BEANS—℔ bushel	2 00	@	3 50	1 70	@	2 75
PEAS—Canada, in bond, ℔ bu	—	@	—	85	@	86
" green, ℔ bush	—	@	1 50	1 30	@	1 40
EGGS—Fresh, ℔ dozen	18	@	21	19	@	22½
POULTRY—Fowls & Chickens	11	@	17	10	@	18
Turkeys—℔ lb	13	@	20	12	@	17
Geese, ℔ pair	1 50	@	2 00	1 00	@	2 00
Ducks, ℔ pair	50	@	1 00	50	@	90
Roosters ℔ lb	8	@	12	6	@	9
DUCKS, Wild, ℔ pair	25	@	60	25	@	75
GROUSE, ℔ pair	75	@	80	80	@	90
PARTRIDGE, ℔ pair	75	@	1 00	40	@	75
PLOVER, ℔ doz	1 37	@	1 62½	1 00	@	1 25
SNIPE, per doz	40	@	1 50	30	@	1 25
WOODCOCK, ℔ pair	90	@	1 15	60	@	70
VENISON, ℔ lb	—	@	—	15	@	20
TURNIPS ℔ bbl	40	@	50	60	@	75
" ℔ 100 bunches	1 50	@	2 50	—	@	—
CABBAGES—℔ 100	1 00	@	2 50	1 00	@	2 25
ONIONS—new, ℔ bbl	1 00	@	2 25	1 00	@	1 50
LETTUCE, ℔ bbl	37	@	50	50	@	1 00
CARROTS, ℔ 100 bunches	1 00	@	1 25	1 00	@	—
POTATOES—new, ℔ bbl	1 00	@	1 75	1 25	@	2 00
SWEET POTATOES—℔ bbl	2 75	@	3 50	1 75	@	2 25
TOMATOES, new, per box	20	@	25	20	@	30
BEETS, ℔ 100 bunches	1 00	@	1 25	1 00	@	—
STRING BEANS, ℔ bag	25	@	50	—	@	—
CUCUMBERS, ℔ bbl	—	@	—	—	@	—
BROOM-CORN	4	@	9	—	@	—
LIMA BEANS, ℔ bag	—	@	—	2 50	@	2 75
GREEN CORN, ℔ 100	40	@	50	40	@	50
EGG PLANTS, ℔ bbl	—	@	—	65	@	1 00
PEPPERS, ℔ bbl	1 00	@	1 50	1 00	@	1 50
APPLES—℔ barrel	1 50	@	2 75	1 00	@	2 75
SQUASH, ℔ bbl	50	@	75	50	@	1 00
OKRA, ℔ 100	—	@	—	15	@	20
PEANUTS, domestic, ℔ bush	1 20	@	1 50	1 15	@	1 45
MELONS, per 100	5 00	@	20 00	—	@	—
GRAPES, ℔ lb	2	@	11	3	@	10
PEARS, ℔ bbl	1 50	@	8 00	2 00	@	7 00
PEACHES, ℔ basket	50	@	1 75	1 00	@	2 00
PLUMS, ℔ bkt	—	@	—	2 00	@	3 00
CRANBERRIES—℔ bbl	—	@	—	5 00	@	7 00
" ℔ bkt	—	@	—	1 00	@	2 25

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Sept. 24	11,362	127	3,667	27,362	28,248
Oct. 1	11,316	95	2,975	24,196	21,186
Oct. 8	9,153	78	2,372	31,688	24,809
Oct. 15	12,310	88	2,800	32,870	32,971
Total for 4 Weeks	44,141	386	12,114	116,056	107,214
do. *for prev.* 5 *Weeks*	50,005	403	16,030	138,712	100,266
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	11,035	96	3,028	29,014	26,803
do. do. *last Month*	10,971	80	3,206	27,742	20,051
do. do. *prev's Month*	8,908	61	3,562	23,178	15,598

Beeves.—The past month's business began with a depressed market. Several serious failures of leading dealers adding to the bad feeling. For two weeks the receipts were large, and this helped the fall of prices until the lowest point since 1875 was reached. Choice cattle sold at 11¼c. ℔ lb., and Texans at 6c., in the middle of the month. Lighter receipts, and a much better quality of stock, mended matters and stiffened the market, but prices could hardly be quoted higher, considering the extra good beeves offered. The foreign shipments during the month have largely increased over any previous month's business. It is easily seen how the list of shipments appears as a barometer of the market, increasing rapidly with lower prices. The market closed very weak, extra cattle selling at 12c.; good fat steers at 11@11¼c.; ordinary to medium at 9¼@10c., and poor Texans at 7¼@8¾c. per lb., a decline of ¼c. per lb. in the last week.

The prices for the past four weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
Sept. 24	8¾@13 c.	9¼@10¾c.	10 c.
Oct. 1	6 @12¾c.	7¾@12¾c.	9¾c.
Oct. 8	7¼@12¾c.	9 @11¾c.	9¾c.
Oct. 15	7¾@12¾c.	8 @11 c.	10 c.

Cows.—The demand for extra good cows fit for beef when done milking, has lifted prices up a point or two. Extra large cows and good milkers, are worth $3 to $5 a head more than last month; the best cows selling for $75, and poor ones for $40 to $60....**Calves** have done well throughout the month; the receipts are getting lighter, and most of them are grassers. The closing prices are 3@3¾c. ℔ lb. for grass calves, and 8¼c. ℔ lb. for good veals....**Sheep and Lambs.**—The business in this stock has been active, and prices have advanced a little, notwithstanding the large arrivals. Prices stood at the close of the month at 6c. ℔ lb. for extra sheep, 5¼c. ℔ lb. for fair, and 4¼c. ℔ lb. for thin and poor. The best lambs brought 6c. ℔ lb....**Swine** have been weak, steady, and strong at intervals, gradually bettering through the month. At the last the tendency was again towards weakness; the market closing on the 15th Oct. with sales of live at 5¼c. ℔ lb., and of city dressed at 6¾c. ℔ lb. Jersey market pigs have begun to arrive, and have sold at 8c. ℔ lb., dressed.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	19.00@ 21.00
Ground Feed, per ton	15.00@ 21.00
Linseed-oil-cake, western, per ton	41.00@ 47.00
Cotton-seed-cake, per ton	25.50@ 40.00
Chandler's Scraps, per lb	3@ 4

Prices of Fertilizers.

No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton	$36.50
do. do. Lobos, do. do. do	47.50
do. do. guaranteed, ℔ ton, cargo C	57.50
do. do. rectified, per ton, 10 p. c..	70.50
do. do. do. 8.40 p. c.	52.50
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (Ville formula) p. 1,000 lbs	26.14
do. Wheat and Grass Manure, ℔ 1,000 lbs.,	27.00
do. Frnit and Vine Manure, do.	17.50
do. Bone, strictly pure, meal .....per ton.	42.00
do. do. do. extra fine.... do.	40.00
do. do. do. fine..... do.	38.00
do. do. do. medium..... do.	36.00
do. do. do. medium do.	37.00
do. Dissolved Bone, 15 per cent..... do.	40.00
Quinnipiac Fertilizer Co's. Phosphate, per ton	40.50
" " Dry g'd Fish Guano, ton 9 p. c. am'a	42.00
" " Pine Island Guano, per ton.	42.00
Stockbridge Corn Manure, (Boston) per acre	22.00
" Potato do do do	12.00
" Tobacco do do do	60.00
" Rye do do do	11.00
" Wheat do do do	16.00
Bowker's Hill and Drill Fertilizer, per ton	45.00
German Potash Salts, (25@35 per cent), per ton	20.00
Gypsum, Nova Scotia, ground, per ton	7.00@8.00
Nitrate of Potash (95 per cent.), per lb.	9¼c.
Sulphate of Potash (actual potash 44 per cent) per lb	4 c.
do. do. (actual potash 27½ per cent) per lb	2 c.
German Potash Salts (actual potash 12 to 15 p. c. p. ton	$20.00
Muriate of Potash (actual potash 50 per cent), per lb	2½c.
Nitrate of Soda, per lb	4½c.@ 5 c.
Sulphate of Ammonia (25 per cent.), per lb	5 c.@ 5½c.
Dried Blood or Dried Meat (ammonia 14 per cent) p. ton	$50

Hog Packing in the West.—The number of hogs packed since March 1 to dates mentioned are estimated as follows, at the places named:

	1877.	1876.
Cincinnati, September 26	122,400	92,200
Chicago, September 26	1,200,000	1,005,000
Indianapolis, September 26	175,000	221,000
Cedar Rapids, September 26	95,500	81,800
Kansas City, September 18	66,157	12,630
Cleveland, September 22	122,642	145,408
Other places approximately	273,301	191,962
Total	2,055,000	1,750,000

This shows an increase of 305,000 hogs in the periods mentioned. The monthly extreme range of prices at Chicago for 1877 and 1876, from Jan. to Sept., are:

	—1877—		—1876—	
	Ex. Range.	*Gen. Av.*	*Ex. Range.*	*Gen. Av.*
January	$5.90 @6.8¼	$6.28	$6.84 @7.44	$7.20
February	5.47 6.57	5.86	7.50 8.50	7.88
March	5.00 5.77	5.31¼	7.65 9.09	8.10
April	5.15 5.74¼	5.37	7.48 8.50	7.87
May	4.95¼ 5.05	5.20	6.57 7.30	5.90
June	4.49 5.03¼	4.71	5.71 6.21	6.03¼
July	4.73 5.03	4.94¼	6.11 6.68	6.47
August	4.61 6.29	5.10	5.82 6.47	6.29¼
September	4.92 5.69¼	5.33¼	5.52 6.27¼	5.97

Boat for Six Persons.—"C. E. C.," New York. For a plan of a stout boat that will hold six or eight persons, and that may either be rowed or sailed, see the *American Agriculturist* for March, 1876.

Editors of Exchanges

will find among the Shorter Articles or items, in *this* number, any of the following, interesting or instructive, for copying. Though every number is copy-righted, against a few poachers, all are perfectly at liberty to copy freely, if the articles are credited to the *American Agriculturist.* The addition of *American* is important, as there are several papers called "Agriculturist," some of which we would not like to be responsible for. As the Editors are allowed to expend $20,000 a year in preparing this journal before it reaches the printers' hands, and great care is taken to have every line trustworthy, this request for due credit is reasonable.

Large Shipments of Farm Produce.....page 413
Harvests of the World..... " 411
A very Unjust Custom..... " 417
Why it Pays to Read. .. .. " 417
Tim Bunker, (quaint, local, but interesting) " 419
Product of Eggs, etc..... " 421
Green Manure and Cow Peas..... " 422
One Thing about Carrots..... " 422
Cabbages, page 412; also in last column..... " 423
Large and Small Animals..... " 427
The Bronze Turkey..... " 427
Blundering from European Practice..... " 430
Manure for Fruit Trees ..... " 431
Seedling Peaches..... " 431
Preparing Coffee (long, but sensible)..... " 432

The Introduction to and many "Hints on Work for the Month," pages 410–412, which are prepared fresh from experience every year by thoroughly intelligent, practical men in each department.

The Articles on Ashes, and Potash, in this and previous numbers, are among the most important contributions to Agriculture the present year, though too long, and including too difficult tables, for general publication.

The Series of House Plans, (a cheap one on page 420), are very useful, but the Author retains the copy-right for a book he is preparing.—Many of the most valuable articles and suggestions of this journal are not adapted to copying, on account of the needed engravings.

Electrotypes of Engravings Supplied to Editors.—The Publishers of the *American Agriculturist* having long maintained a corps of first-class Engravers and Artists, have an immense stock of original wood-cuts, never used, except to take wax impressions for electrotyping. Electrotypes of most of these, as sharp and perfect as the original new cuts, ready blocked for printing, can be supplied for about ½ the cost of the originals.

American Agriculturist for Nov. 1st

contains some 40 engravings, and about 120 longer or shorter articles and items, most of which convey useful, practical information of a valuable character. The plans, descriptions, and detailed estimates for a **$500** HOUSE will perhaps interest the widest class of people, as every body wants a house of some kind, however humble. The 7 columns of Hints on the Work of the Month will greatly help one's memory, and afford many useful suggestions. The Humbug Exposures are racy, and a safeguard to many people. The figures giving shipments of our farm products abroad, and the probable demand, are cheerful reading. A whole batch of labor-saving and other useful contrivances, mostly home-made, will well repay examination, as will "Science applied to Farming," "Among the Farmers," "Talks on Farm Crops, No. 9," "Evergreens for Small Places," the Household and Children's Department, etc., etc. The whole number will be found full of good things, useful to all classes. Single numbers, post-paid, 15 cents. From now to the end of 1878, $1.60, post-paid. Orange Judd Company, New York, publishers.

Large Shipments of Farm Produce.—Whole fleets of large steamships are departing every week loaded down with American farm produce. Sometimes 500,000 bushels of wheat go on a Saturday. The steamship "England," of the National Line, alone took 65,000 bushels of wheat on October 8, equal to 3,900,000 lbs., or nearly 2,000 tons! The eight Steamers on that day carried 263,000 bushels of wheat (15,780,000 lbs.); 9,150 barrels of flour (1,830,000 lbs.); 8,000 bushels of corn; 32,000 bushels of rye; 3,850 bales of cotton (1,925,000 lbs.); 2,465 boxes of bacon; 21,000 boxes of cheese; 4,500 packages of butter; 1,450 tierces of lard;

about 200,000 lbs. clover seed; 4,500 *cases* of Canned Meats; 1,530 bales of hops; about half a million pounds of fresh beef in quarters; besides large quantities of tobacco, apples, tallow, salted pork and beef, oil cake, cotton seed oil, starch, 1,200 bags of ivory nuts, 477 slabs of rubber, grass seed, etc., etc. The above, a single day's shipment, will give a pleasant exercise for the youngster in arithmetic, to figure up the pounds, tons, and value in dollars at the fair home price in any locality. The following are approximate weights: Box of Bacon, 300 lbs.; Box of Cheese, 40 lbs.; Tierce of Lard, 300 lbs.; Package of Butter, 100 lbs.; Bag of Clover Seed, 120 lbs.; Case of Canned Meats, 48 lbs., (2 dozen 2 lb. cans); Hogshead of Tobacco, 750 lbs.; Tierce of Beef, 350 lbs.; Barrel of Pork, 200 lbs. By and by we shall get the official figures for these autumn months; they will show our estimate last month of $500,000,000 received from abroad for our surplus farm produce this year, to be under the truth.

P. S.—Export in 10½ months, 1877: Fresh Beef, 86,132,730 lbs., value $8,960,388. Same time, 1876, 19,990,895 lbs., value $1,755,191. Live Cattle, 1877, 19,250; value $2,450,350. Fresh Mutton, 1,883,850 lbs; value $123,900. Live Sheep, 12,400, value $81,350. Total value of live and dressed beeves and sheep exported Jan. 1 to Oct. 13, 1877, **$11,460,320,** against $1,755,191 in 1876.

Butter Factory.—"W. L.," Waterloo, P. of Q. It would require more space than we have to spare to give full descriptions of a butter factory. Much information, with illustrations, is given in the *American Agriculturist* for May, 1874, which would be found useful by one proposing to build a factory. In Willard's Dairy Husbandry (price $3.00), there are many plans of factories, and the whole business is described in detail.

The Use of Incubators.—"W. L. M.," Wilmington, N. C. Incubators are now attracting much attention, and the season is coming on when they can be most profitably used. It must not be supposed that these machines can be used with the same facility as a clock which needs winding up once a day, and will then run alone. On the contrary, an egg is such a delicately organized embryo that the utmost care must be exercised in regulating the heat of the incubator, else it is destroyed by a slight excess one way or the other. A difference of two degrees either way if long maintained is sufficient to kill the eggs, or to produce such weakly chicks that they die soon after being hatched. To use any incubator with success, one needs to exercise tact, judgment, constant attention, patience under probable failure at first, and great care in selecting eggs. Then with the right kind of incubator one may generally succeed in hatching chicks. An incubator with an automatic regulator of the heat, and with a steady source of heat would be preferred by some. The cheapest one is that which uses horse manure; this necessarily requires an experience as to the behavior of fermenting manure under different circumstances.

Cool Setting of Milk.—"A. D. S.," Montgomery Co., Pa. The newly discovered process of setting milk at a very low temperature, is working very well. The milk is kept in closely covered, deep cans, at as low a temperature as possible, so that it will not freeze; 45 degrees is a very favorable temperature for raising the cream in the shortest time. This may easily be procured by using ice. In the Cooley System the cans are submerged in water, and the water is cooled down to 45 degrees, or as near to it as may be practicable by means of ice. The cooler is then closed and this temperature is maintained for a considerable time without any further attention. With a cool running spring no ice is needed.

Trial of Agricultural Engines at Syracuse.—A most interesting exhibition and trial of agricultural steam engines, is to be held at Syracuse, on Nov. 12th, under the management of the N. Y. State Agricultural Society. The Society offers a large gold medal for the best engine in each class—under six-horse, and over six-horse-power—and a silver medal for the second best in each class. These trials of engines, will be very well worth the attention of those persons who are using them, or who expect to do so, and it is to be hoped that many will be present.

The Colorado Mountaineer, published at Colorado Springs, Col., by Marsh & Adams, is a wide-awake, well edited, and beautifully printed paper, giving a good deal of information in reference to that enterprising new State.

Alpine Flowers for English Gardens, by William Robinson, Editor of "The Garden." This is a new edition, enlarged by new matter and illustrations, of that which was before the most thorough work on its subject. It treats very fully of rock-work, showing by both example and warning, the proper and improper construction of the rock-garden, and is indispensable to one who would undertake the culture of Alpine plants here or elsewhere.

The Sportsman's Gazetteer, by Charles Hallock, Editor of "Forest & Stream," and published by the Forest & Stream Company. A thick 12 mo. of about 900 pages. It gives descriptions of all the North American quadrupeds, birds, and fishes, regarded as "game," treats upon dogs, boats, wood-craft, and other matters useful to the sportsman, and has a very complete directory, accompanied by maps, of the principal game resorts in all parts of the country. Sent by Orange Judd Company by mail for $3.

Treatment for Ringbone.—"B. A.," Linn Co., Iowa. This disease, which consists of inflammation of the membrane covering the bones of the pastern joint, followed by a deposit of bony matter, which in time causes the bones to unite and make a stiff joint, requires different treatment in young horses from that necessary with old ones. Young horses frequently recover quickly, while old ones are sometimes treated without effect. The proper course consists of rest and cooling applications until the inflammation is subdued; then apply a blister, such as 20 grains each corrosive sublimate and camphor, 10 drops of hydrochloric acid, and one ounce of turpentine. Watch the blister, and wash off when the effect is sufficient.

Cleanliness in the Poultry House.—"H. B.," New London, Conn. When cleaning the perches in the poultry house, it is necessary to apply the mixture of kerosene oil and grease to the underside as well as the top. This is often neglected, and the lice gather there. Everything about poultry management should be thoroughly done, to avoid failure.

Game Laws of Pennsylvania.—We have a copy of the digest of the game laws of Pennsylvania, compiled by Chas. E. Scott, of Bristol, Pa., which should be read by all persons disposed to preserve valuable wild animals from extermination, as well as by those who are unlawfully engaged in such destruction, that they may be warned of what the laws require.

Concrete Houses.—"A. E. W.," Charlotte Co., Va. In the *American Agriculturist* for December, 1874, there was given an illustrated article, fully describing the mode of constructing concrete houses. This kind of house is cheaper, more durable, dryer, and warmer than one of either wood or brick.

A Sick Hog.—"E. B.," Adams Co., Ohio. Vomiting is a symptom of the disease generally called "hog cholera," but properly typhoid or bilious fever. It is useless to treat a hog for this disease, as medicines very rarely have any effect. Every one who owns even one hog, would receive more than the money worth by the investment of $1.75 in Coburn's "Swine Husbandry," if he would read it and follow the plain advice there given for the healthful treatment of his animal.

Borrowing to Buy a Farm.—"P.," La Porte, Ind. We advise no one to borrow money to buy a farm. The efforts to repay borrowed money are now overwhelming thousands of farmers in trouble and anxiety, and hundreds are losing all they have in vain attempts to pay exorbitant interest. Keep out of debt. A man in debt is poorer than one who has nothing.

The Microscope.—Practical Hints on its Selection and Use, by John Phin. The second edition of Prof. Phin's work is enlarged and much improved over the first by abundant illustrations. This is much better adapted to the use of beginners than the more elaborate English works, as it describes American instruments and appliances. Its elementary style and full and plain descriptions make it the best hand-book on the microscope for the novice that we have seen. Sent from this office post paid for 75 cents.

Sending Postage Stamps.—It is interesting, and also gratifying, to see one's suggestions adopted, and in practice over a wide extent of country. In July last we showed the inconveniences attending the usual method of sticking the stamp to a letter, when sent for return postage, and showed how it could be readily secured by passing it under a band made by cutting two slits in the paper. Since then a large share of the stamps received by us are thus treated, much to the gratification of those who open the letters. Formerly it often took more time than a stamp was worth, to detach it without so defacing it that it would be useless, but the method of holding it in a slit, saves trouble and vexation of spirit, and what is often of great consequence with us—saves time.

Sundry Humbugs.

Our correspondence—which in the Humbug line is something immense—is as correct an indication of the state of the Humbug atmosphere, as is the barometer of the terrestrial atmosphere. When circulars of a particular scheme come in daily and regularly, we feel sure that those "running the machine" are making money. If they come in slowly, we know that their business is dull, but when their circulars show a "change of base," and that the projectors are trying some new dodge—then we know "the jig is up." These remarks have reference to that little game which has been played by persons calling themselves the "Finance Committee of the Louisville Lottery Co.," and whose circulars, informing thousands of people that each has drawn "a gold watch and chain, valued at $150," which can be had by applying to Russell & Co., of Bond street, N. Y., have been scattered far and wide—indeed we have so many of them that even at the present low price per pound for waste paper, they will add not a little to our "profit and loss" account. Russell & Co. claim to be only concerned in the matter so far as to deliver certain watches when certain terms are complied with, and our sympathies—such as they are—are with Russell & Co., for they must have been greatly astonished to find there was a total change of base, and been surprised to find that the circulars, making demands upon them, were no longer in behalf of

THE FINANCE COMMITTEE OF THE LOUISVILLE LOTTERY ASSOCIATION

—That name we had come to know, if not love, so well, but a kind of joint stock affair, a sort of general lumping of "all the Unclaimed and Forfeited Prizes in the various Legal Lotteries which have been drawn in the 'United States' for the past 10 years." The unclaimed doings of the Louisville thing, amounted to $94,000, while this new circular claims the amount for 23 Lotteries, to be only $122,944.00. Then (can the watches "valued" at $150 have "gi'n out"?), the "prizes" which Russell & Co. are to deliver, according to the new circulars, are generally, "A Lot of Gold Jewelry, (about 80 different patterns) valued at $—"—but the blank before us is not filled, and we shall never know what they are valued at, but the important blank after "the percentage due" is filled with $14.00, which we have no doubt Messrs. Russell & Co. will gladly receive.

80 JEWELRY THINGS FOR $14.00!

just 17½ cents a piece—who would not adorn themselves at this low rate? In the old flush times, it was said of the Attleborough jewellers, that they did not stop to count their wares, but turned them out by the peck. This lottery concern hasn't got to that, but "80 different patterns," oh! We are not yet informed how "Hetherington & Co" are mixed in this matter. Circulars are still issued using the name of Russell & Co., but the correspondence in reference to these same circulars, appears to be carried on by H. & Co., but those who let all such things severely alone, will not be bothered, as to who is who in the matter. The operators

CAME TO GRIEF IN POLK TOWNSHIP, OHIO.

Mr. J. W. Coulter being informed that he had drawn "a gold watch and chain valued at $150"—which he could have by paying $15—wrote to the parties to send the watch, C. O. D. subject to inspection. In a few days he was notified by Hetherington & Co. that the watch had been sent according to his order. Mr. C. went to the express office to examine the watch but was not allowed to do so. This would have baffled most persons, but Mr. Coulter went before a Justice of the Peace, put in a bill for attorney's fees, and got a writ of attachment on the package. The estimated value of the watch when examined was $4. At last accounts Mr. Coulter had a "gold watch and chain valued at $150," which he would sell somewhat under valuation.... The

"ROYAL DOMINION" LOTTERY,

called a "Gift Concert," was getting to be a nuisance such was the number of circulars, and all alike, but since the notice in our last, the matter has been taken up by our vigilant Postal authorities, with already perceptible effect. It appears that a number of the lottery swindlers, finding their business too much interfered with to be profitable, have left the States in disgust, and selected the "Dominion" as a safe point from which to load our mails with their illegal matter—a little game which our

officials do not propose to allow. They should find some way of putting a stopper upon one Albert Friedham, of Hamburgh, Germany, who has somehow got hold of the names of respectable people in this country, whom he annoys with his lottery circulars... And now

LOTS OF ESTATES IN AUSTRALIA

are going a-begging, all for the want of heirs. So numerous are they, that one chap has a printed circular with a blank which he can fill with the name of "the late" so and so. Fortunately all the estates thus left are valued at an even "one-and-a-half millions of dollars," so this part does not need to be changed. This is the thinnest of the kind that we have seen....Well, here is something that smacks of the Middle Ages, for it is

ALL ABOUT LOVE POWDERS,

which it seems there are fools yet to buy, and rascals who will sell. But the story as told in the "Buffalo Courier" is very prosaic. "Prof. Hayden" offered to sell "Love Powder" which would work "wonders upon female affections." We are left by this in very much the same state of doubt that the old lady was, about her indigo. "If it was good, it would sink or swim, and she couldn't tell which." Whether the "wonders upon female affections" were to be manifested by curing the most desperate cases of real old fashioned love—that kind we read about, or if it was to start up a glowing flame in ice-cold hearts, after the manner of Cupid and his "bellowses," as used to be pictured on the valentines —we can't say. A Mr. Randall received a letter describing the love powder as above, but instead of getting some of it, and experimenting, and telling us what it did, he in a very unpoetical way sent the "Professor's" letter to the post office authorities. They nabbed "Prof. Hayden," who turned out to be only Bill Kelly, who, not having $100 handy to pay his fine, went to jail, and we don't know any more about "Love Powders" than we did before.

MEDICAL MATTERS,

as cool weather comes on, are a little livelier. We reply to several that Adee's prescription or recipe, which he proposes to send "free by mail," is after the old style. We sent for it long ago, and found it to be of stuff not known in the shops—but he overcomes that slight difficulty by supplying it himself.....Morris Co., N. J., has recently been invaded by

TRAVELING EYE DOCTORS,

who profess to be from the "Eye and Ear Infirmary" in 13th street, New York. This is sufficient to stamp the fellows as frauds, for no proper infirmary, hospital, medical college, or "university," (were there such a thing), ever sends out "agents" to drive through the country and look up patients. They came across the wrong customer in one of our readers, who does not hesitate to designate those who called at his house "a couple of impostors," and says that "the eldest of these scamps is evidently an English subject about 50; the younger, less than half that age, probably an American." Our New Jersey friends should be on their guard. These chaps offer to effect certain cures for specified sums, and whoever does this is not to be trusted to treat a cat. Our correspondent is to be commended, he gives his story, signs his name, and then tells us to use all or any part of it, and does not add: "On no account publish my name or anything which will indicate who wrote this." Mr. Leach, we like people who are in earnest, and you are sound on medical matters.

AMERICA IS A GREAT COUNTRY,

the United States is only a small portion of it. We often, we Yankees, call ourselves "Americans," and our country America, as if there was not, let alone the strip running far to the south of us, north of the St. Lawrence a Dominion reaching all the way to the North Pole. We must, with whatever of reluctance and loss of national pride, admit that the Dominion of Canada is quite the equal of "the land of the free and the home of the brave" —in quacks and quackery. We have before us the "Herald of Health," it is published by W. H. Comstock "is his name," and Brockville "is his station." We have just a bit—"a "smudging"—of a certain kind of sort of respect for W. H., as there is nothing of the hypocrite about him—he is not impelled by "love to his fellow beings," or from a "sense of duty to humanity." W. H. says: "Self-interest is the spring of all human actions, and were I capable of acting above that motive, I should be more than human."—We are almost tempted to say "Billy, you're a brick," but in view of what follows we don't, but are forced to believe that William, you are a very bad plagairist, and have gone and stolen another man's thunder. Besides, we are not sure that "W." stands for William at all. Among other things, W. H. offers

MOUNTAIN HERB PILLS,

which are made of herbs which are herbs, because they have principles. If they would go for "principles, not men," it would be all the better for the men. The first principle goes for the blood, principle No. 2 gets after the skin, the third takes care of the lungs, the fourth gives its attention to the kidneys—but it is of no use to enumerate; we should say that these pills would be decidedly "sarching." Many years ago we knew an old darkey who did "doctorin' 'round" among his people. One day, in a ramble, we came across old Henry, who had cut a lot of barberry stems, and he was scraping the bark from them into two different papers; we asked the reason for this, and learned—though he used very different terms—that the bark scraped *up* would act as an emetic, while that scraped *down* would be a cathartic. We asked, "Henry, suppose you should scrape both ways, how would it act?" the "Yah! Yah!! Yah!!!" that followed, left us to imagine that the effect would be very "sarchin"—as much so as these "Herb Pills." If one wants something more radical than Herb Pills, W. H. offers Root Pills, and Indian Root Pills at that, or to be more precise

"DR. MORSE'S INDIAN ROOT PILLS,"

and if one don't believe they have "vartues," let him just read the pathetic "Short History of Dr. Morse's Father, Also Showing how this Wonderful Medicine was Brought into Use." Doctor Morse had a father. Dr. Morse's father had a son—that was Doctor Morse. Well, Doctor Morse's father sent his son off among the Indian tribes, who show much Indian-ooity in case of sickness, and he, the son, was to learn all about it. But Doctor Morse's son's father was very sick. "He had eight of the most celebrated doctors to attend him, night and day," from which we infer that he had a constitution second only to that "which must and shall be preserved." We pass by the really—in its place—wicked quack-medicine lie, about prayers "ascending to the Throne," and much more shameful talk. But when Doctor Morse's father was *in extremis*, and "every eye was bathed in tears, a rumbling noise was heard in the distance, like a mighty chariot——," thus far, reader, we have quoted from the "Herald of Health," published in Canada, about Doctor Morse's father, we now turn to the United States, and take up a nice little pamphlet published by A. J. White, in New York, where is given "A Short History of White's Father," and proceed—"winding its way nearer, when all at once a fine span of horses before a beautiful coach, stood before the door, out of which alighted a noble and elegant looking man." This elegant chap was of course Doctor Morse, who at once gave Doctor White's father some stuff, and then the fathers of Doctors Whorse and Morite both got well. The fact is we are getting things mixed—but if any one wants to know how Doct. White's father got well let them read the story of Doctor Morse's father, or if more interested in Doctor Morse's father, let them read the story of Doctor White's father, for they are both alike, and one is just as true as the other. It is only those who can swallow such stories, that swallow the miserable quack medicines that such fictions are used to sweeten.

Fall Plowing for Corn.—Heavy clay soils that have a good covering of clover or grass sod, may be plowed this month for a crop of corn next season. We would not plow the furrows flat, but set them on edge. In the spring a good harrowing, lengthwise of the furrow, will give a sufficient depth of mellow soil for planting, leaving the decomposed sod just where the young roots can reach it. A light application of artificial manure, before the harrowing in the spring, would be very beneficial. The planting should immediately follow the harrow, while the soil is fresh. Light or mucky lands had better be left until spring, as this treatment is not proper for them.

A Hamstrung Horse.—"H. B.," Killarney, La. The rupture or separation by cutting of the tendon of the heel of a horse, known as the tendon of Achilles, is incurable, except under the rarest combination of favorable circumstances, and then will almost surely result in a permanent retraction, which will cause the limb to be useless. If an effort is made to preserve the horse, the whole limb must be held rigidly motionless with bandages, and the wounded part dressed with cold water. It is barely possible that the severed tendon may unite in course of time, after prolonged rest.

Emigration to the South.—"B." Under present circumstances there seems to be not the slightest objection for a Northern man to go anywhere in the Southern States. If he has a desire to procure a farm there, there are now very favorable opportunities and any inducement to molest a Northern man, which may have existed in some localities, from just or unjust causes, no longer remains. There is one locality at least, where a thrifty colony is in course of formation. This is at Highlands, Macon Co., North Carolina, where Mr. T. S. Kelsey, formerly of New York, and some friends have settled. Mr. Kelsey writes that that part of the country offers many opportunities, such as cheap fertile land, and a very healthful, mild climate. There is ample room in many parts of the South for colonies of Northern men, who can procure homes at a very small expenditure of money.

Ladies and Children's Shoes can hardly be treated with the ordinary blacking used upon men's shoe-leather; indeed they are usually of a style that would be disfigured and injured by the usual "shine 'em up" of the boot-blacks. The article called French Dressing, made by B. F. Brown & Co., is prepared especially for delicate leather boots and shoes, to which it gives a fine finish, and it will make traveling bags and other articles of leather look as good as new. The Dressing is prepared by one of the long established Boston houses, and has been in satisfactory use for a number of years by several of our associates.

Wheat for Name.—"J. B.," Isabella Co., Mich. It is impossible to identify, with any certainty, a sample of wheat, unless the whole head is sent, and then it can only be a guess in many cases. Different soils and vigor of growth quite change the appearance of the same variety of wheat, and sometimes even change the color considerably. Thus a white wheat, grown on a rich, light, sandy or calcareous loam, will be light and bright, while on a damp, mucky soil, it may be nearly red.

White Specks in Butter.—"A Subscriber," Bay Ridge, Long Island. The white specks found in butter may be due to several causes. One is an acid condition of the milk, which causes a deposit of small curdy particles that are mixed with the cream, and when it is churned these can not be separated from the butter. Another is the presence of lime in the salt; this forms an insoluble soap with the butter, which exists in small nodules wherever there is a particle of lime. Another cause is the cow itself. Some cows always yield specky butter from some constitutional peculiarity. Again, it may be that the air of the milk-room is impure, and conveys some germs of decomposition into the milk, and produce this effect. A possible remedy, if the cause is acidity of the milk, is to put a teaspoonful of carbonate of soda in the cream pot, and stir it thoroughly.

The Best Pigs.—"J. H. S.," Northampton Co., Pa. We cannot say which are the best pigs for any person, without knowing exactly how he is situated. The best, as a family pig, if only one is kept, is probably a pure or grade Berkshire; for what are called market pigs, that is, pigs for small pork about 100 to 190 lbs., either Essex or Suffolk are best; for heavy pork the Berkshire, Poland China, or Yorkshires may be chosen, and one of these is about as good as another.

Manufacture of Tile for Conveying Water.—"S. W.," Placer Co., Cal. An article descriptive of the manufacture of drain-tile was given in the *American Agriculturist* for June, 1874. There are tile-machines made to be operated by horse or steam power. In using tiles for carrying water for irrigating purposes, there would be a great waste through the joints in consequence of the pressure of the head, unless the joints were made close. This could not be done with ordinary tiles. Common clay-tiles are also porous. The best thing to do, perhaps, would be to make cement pipes, as described in the *American Agriculturist* for Dec., 1872.

Produce of a Grade Jersey Cow.—"W. L. S.," Jersey Co., Ill., writes that he has a grade Jersey Cow, 2 years old, which, in 196 days milking, yielded 196¾ lbs. butter, besides raising a bull calf. The product realized ($15 for calf included) $63.68 cents; the cost of feed was $19.38, leaving $44.30 for a little more than 6 months keeping. The amount of milk was 3,302¾ lbs., an average of 22 lbs., or about 10 quarts daily.

Steamer for Cooking Feed.—"A. H.," Buffalo, N. Y. The Anderson steamer, made by Whitman & Burrel, Little Falls, N. Y., is a cheap, effective, portable steamer, and occupies little room. It is supplied with water, by a tank, which can be had with it.

A Sample of Oats has been sent by a correspondent at Quarryville, Pa., who says, from 1 bushel sown, 10 were harvested, and from these 10 bushels 105 were grown. This is such an insignificant yield, that we would not advise any more of them to be grown. There are plenty of oats which weigh 45 lbs. to the bushel, and on good soil will produce 20 to 25 bushels from one bushel of seed.

Land for Sale in Southern Wisconsin and Minnesota.—"W. E. B.," Williamsport. Southern Wisconsin has been settled for several years, and there is no Government land left there. But there is plenty of unoccupied land, that can be purchased for $10 an acre, upwards. In southern Minnesota there is still some land left, and plenty, besides that, can be bought from railroad companies for a low price. The only proper way is, to go and look out for yourself.

13 Months for a Year.

Every New Subscriber for 1878 sent in during November will receive the next month's paper free. (See page 413.) This applies to ALL subscribers, whether coming singly at single rates, or in clubs at club rates, or in premium clubs.

The Fairs.—With few exceptions, the fairs throughout the country have been more than usually successful. For many years, farmers have not been in such good spirits as they now are, with present prosperity and favorable future prospects before them. They have consequently not only made a good show of stock and products, but they have generally crowded to the fairs, themselves and their families, and have put the different Agricultural Associations into easy financial condition. It is worthy of note that those fairs which have been devoted mostly to purely agricultural matters, and have avoided the horse trots and miserably poor side-shows, have done the best. The New York State Fair stands every year a conspicuous example of what an Agricultural exhibition ought to be; and although the management is most liberal, the grounds beautifully and expensively furnished, and no outlay is spared to offer the public an interesting and instructive show, yet it has a handsome surplus to its credit. We do not wish to reflect on other managements, or blame the executives of other societies, for what we feel to be injudicious, if not erroneous practice; "every one to his taste"; but we would repeat what we have often said previously, that it is in the power of the managers of the fairs to exert a beneficial influence upon their patrons, and especially upon the young people, and in their interest, every thing that is questionable even, should be rigidly excluded.

Interesting Notes on Potash.—All cultivators will be interested in Prof. Atwater's article on Potash in this paper. This substance is becoming more and more important as a fertilizer, and just as a kind Providence had prepared immense stores of Petroleum in the earth to be brought forth to yield light when the great whales failed to supply a sufficiency of lamp oil for the multiplying human race, we now find that, when the ordinary supply of potash needed to produce food plants has begun to grow scarce, the same kind Providence has provided for the emergency by wonderful beds of this valuable fertilizer, that until recently lay hidden in the bowels of the earth. These deposits underlie some 600 square miles in one locality, furnishing a supply for centuries, as Prof. Atwater tells us; and doubtless future discoveries will be made of other like deposits.

The Army and Navy Journal is the leading military journal in this country, and is recognized as part of the military establishment, receiving and publishing weekly the orders from every Army and Navy Head-quarters and Bureau. It is indispensable, therefore, to all interested in military affairs. Rifle practice receives much attention, this journal having originated and advocated the movement for improved rifle shooting, which has been so successful in this country. Its editor was, for the first three years, President of the National Rifle Association, which has recognized his services by electing him an honorary director for life.

Nails in the Stomach.—"M. W. S.," Fort Valley, Ga. The presence of sharp bodies in the stomach of an animal, frequently causes death. Nails, pieces of wire, pieces of glass, and such pointed or sharp-edged bodies penetrating the coats of the stomach, produce irritation and inflammation, and finally death. It is a marked symptom that deaths from this cause are sudden and without warning, and seem to be painless.

Rice Hullers.—"J. A. M.," Sarepta, Miss. Rice hullers of many kinds are made by Squiers & Sons, of Buffalo, N. Y. Had you given your full name, as every correspondent should do (for private use only,) we should have replied by mail some time ago.

A Kansas Hedge.—"R. S. M.," Woodson Co., Kas. It is not possible for us to advise you intelligently from the information at hand. You should state what kind of a hedge, its age, and its previous treatment, or at least when and how it was last pruned. If an Osage Orange hedge, has it been lopped, and when?

The Autumn Horticultural Show.—The N. Y. Hort'l Society's Exhibition took place at Gilmore's Garden, Sept. 26th-28th, and was a complete success in all Departments. In fruits, the show of grapes, apples, and pears, was excellent, and in vegetables, the collections were such as are not often seen at horticultural exhibitions. The display of what are known as hot-house or stove plants, exceeded anything before ever seen at any of the previous shows; so perfect was the development and wonderful the markings of many of the "leaf plants," that it was difficult to convince the uninitiated that they were natural productions. The display of Cut Flowers and designs was also large, but in these there was no advance over former exhibitions. A Miniature Flower Garden, the beds cut out in the grass, and planted to show the ribbon line style of flower planting attracted much attention; it was exceedingly well done, and reflected great credit on the skill and enterprise of the exhibitor. One difficulty connected with the Society's exhibitions must be remedied—so far, no distinction of class is made, so that amateurs are forced to compete, if they compete at all, with professional florists and nurserymen. It is probable that the Society, at its next exhibition, will have the articles offered in separate classes—one for amateurs exclusively, and the other for professional florists and nurserymen.

Basket Items continued on page 441.

A Remarkable Collection of Trees

is described in a handsome book that we have just received, which is entitled *Arboretum Segrezianum*. It contains a catalogue of the trees and shrubs that are in cultivation at Segrez, which is a country place about 14 miles west of Paris, the property of M. Lavallée, the author of this volume. We suppose that this arboretum, although at most only twenty years old, is one of the largest and bids fair to be one of the best in France. On the whole, it is probably the best named large collection of trees and shrubs in that country. When we saw it, less than ten years ago, it was thought to comprise about 3,000 species, of hardy trees and shrubs, acquired from very various sources, mainly by purchase, and bearing the names under which they were received, and the perplexed proprietor was endeavoring to arrange their names in something like consistency and correctness. In the preface of his work, he gives an almost pathetic account of his difficulties and troubles; of the same tree or shrub doing duty with the nurserymen for a half dozen others, while on the other hand different species would be received under the same name; how many species common in the catalognes are really not in cultivation at all, while others, said to be very rare, were met with in profusion; how "*quelques horticulteurs*" had the habit of changing the names of long-cultivated species and baptizing them anew for the sake of a fresh sale, while others would not hesitate to supply orders for species they really had not with those which they happened to have. The result was that he had to form a complete library of tree-lore, and, forgetting as much as possible the received names, determine them all afresh for himself, under such scientific aid as he could command. Hence the present catalogue, in which all the species and marked varieties now possessed (over 4,000 in number) are systematically arranged, the origin or native country indicated, the synonymy given rather fully, and the principal published illustrations cited. All of which should be very useful to those who have similar establishments to form, or to take care of. There are a good number of species of which we should like to see the representatives and know the authority for the naming. For instance, among American wild plums, besides the *Prunus Americana*, *maritima*, and *Chicasa*, the enumeration comprises *Prunus nigra*, *pygmæa*, *hyemalis*, and *acuminata*. That some names, especially of persons other than French, should be misprinted, is not surprising, but the book is very handsomely got up.

We were pleased to find in the preface a brief historical sketch of the early tree-planters and collections in France, from the time of René de Bellay, bishop of Mans, in the middle of the 16th century, and of the elder Robin, who founded the first botanical garden at Paris at the close of that century, down to Duhamel and to Andre-Michaux, who lived in our own time. A. G.

[Many readers will be glad to recognize in the well-known signature to the above, the fact that Prof. Gray has returned from his long summer excursion. In company with Sir Joseph Hooker, Prof. Leidy, and other naturalists, and—in part at least—with Prof. Hayden's Survey, he made very thorough explorations in New Mexico, Colorado, Utah, and California. In a private note written the day after his return (Sept. 22d), Prof. G. says: "Never was an expedition from first to last so fortunate. * * * From California to Cambridge with but two stationary beds was trying, but we stood it well. Have been everywhere, and everywhere fortunate, *have learned much*, worked hard, and enjoyed it all. Are at home, well and strong—what could we ask more?"—Our only excuse for printing a mere private note is to call the attention of our younger readers to the fact that Prof. Gray, who stands in the front rank of the world's most eminent scientists, in recounting to a friend the benefits of his long journey, gives prominence to the fact (though the Italics are ours) that he has "learned much"—such men never stop learning. Only the shallow cups get soon filled.—ED.]

The New York State Fair.

A more than usually successful fair of the New York State Agricultural Society, held at Rochester, Sept. 17-21, has proved the wisdom of depending upon legitimate attractions for success, and has shown that farmers *will* patronize a purely agricultural exhibition, without the too common horse-races and objectionable side-shows. Plain farmers are capable of enjoying the beautiful and the useful; and at Rochester these were provided for them in finely laid out grounds, and an unusually good display of machinery and live stock. We are obliged to stop here, because for once the dairy and farm products were deficient, not to say poor in the extreme. For the greatest dairy State in the Union to fail to show one good sample of butter, unless it might have been a small roll exhibited by a farmer's wife, was something remarkable, if not blameworthy. There were, however, a few things to be seen well worthy of note. The agricultural machinery was excellent in every way, and it was pleasant to observe the lively interest exhibited by the crowds of visitors in its examination. The growing necessity for farm machinery of all kinds, will soon oblige every farmer to become an expert in its selection and its use, and every opportunity to study it should be seized and utilized. The live stock was good, but not so numerous as usual. Counting from the Catalogue, we find 170 entries of horses, and, curiously enough, precisely the same number of cattle of the different breeds. Among the latter, the Ayrshires were the most numerous, numbering between 40 and 50. The best of these were exhibited by a Canadian breeder, Mr. J. W. Jardine, of Hamilton. The Jerseys were conspicuous chiefly for the presence of herds, whose owners are new to fame as prize-winners, and the absence of the old set of victors in the ring. The Messrs. Burden, of Troy, bore off the most of the prizes in the Jersey class. Of Dutch cattle, (why will they call these Holsteins?) the "Unadilla Valley Stock Breeders Association" exhibited the best. More than 40 Shorthorns were shown; the "Princesses" of C. F. Wadsworth, Geneseo, N. Y., took the lead; "Treble Gloster," owned by Fellows and Butts, of Clifton, took first premium for bulls over three years old. A score or more of Devons, and a few common cows, working cattle, and fat oxen, made up the show. A Shorthorn cow took the first prize as a milker. A monstrous grade Shorthorn ox received the first prize for fat cattle. Amongst the sheep a lot of cross-bred or grade Cotswold-Merinos were very noteworthy, as showing how profitable a sheep both for wool and mutton this hardy cross can be made. The South-Downs of J. D. Wing, and the fine-wool Merinos of Mr. Chamberlain and Carl Heyne were, as usual, beyond competition. A good assortment of pigs were shown; those breeders, however, who made the most show, failed to take the first prizes. Of poultry but a small show was made.

The Harvests of the World, and the Markets for our Products.

A review of the condition of the now completed and ascertained harvests of the civilized world is interesting, as it furnishes a key to the question—what will be the probable condition of our markets, until the next year's crop begins to influence them? From the most trustworthy sources of information the Wheat surplus of the following countries, which compete with the United States for a market, is estimated as follows:

Egypt	10,000,000	bushels.
Canada	8,000,000	"
Spain	2,000,000	"
Germany	2,000,000	"
Austria and Hungary	6,000,000	"
Total	30,000,000	"

This insignificant quantity is all that can be thrown upon the markets of the world from these countries. Italy has no surplus to export, and Russian trade is crippled by the war, in which that country is now engaged, so that there will be small supplies from there, to meet the serious deficiencies which we have to note. These deficiencies exist in France and Great Britain. The necessities of France will call for an import of 24,000,000 bushels, which will nearly swallow up the whole surplus above mentioned, as expected from all probable sources. The harvest of Great Britain has been very deficient, not yielding more than 43 per cent of the quantity of wheat usually consumed. Considerably more than half the needed supply of Great Britain

will therefore have to be imported. The quantity required is estimated at 90,000,000 bushels. There is no source from whence this enormous amount of wheat can be procured other than the United States. As it happens, we have practically the world's market in our hands, and the price of wheat may now be fixed at New York, instead of, as heretofore, by our rivals at London. But we are not to understand by this, that any unreasonable price can be put upon our grain, and realized. There is such a thing as prohibitory prices, by which business is stopped altogether. The fact is, we can get full value for our wheat, but no more, for if prices should become unreasonably high an active economy will be exercised in the consumption of those countries having either some surplus, or just sufficient for their own wants; and supplies will appear from unexpected quarters, to compete with ours. Then the bottom would drop out of our market, and our stock partly remain upon our hands. This should be considered, lest too high expectations should be formed, which will not be realized. To spare 90,000,000 bushels, will draw very closely upon our granaries, and will add $120,000,000 to our income in hard cash. In our present condition, the moment this outward current of grain and inflow of money begin to operate, business will feel the beneficial effects, and give us reason to congratulate ourselves that fortuitous circumstances combined for our advantage, just when we were in the greatest need of help.

Bee Notes for November.

BY L. C. ROOT, MOHAWK, N. Y.

It will be remembered by the readers of these Notes that one of the best swarms in my apiary, the present season, is one that was wintered upon its summer stand. I am generally opposed to out of door wintering, yet in an ordinary season, bees may be so wintered with success. Even when the season is severe, bees may be wintered on their summer-stands more successfully, when the necessary requirements are observed, than when placed in a damp, poorly-ventilated cellar. A cellar, properly ventilated, so arranged as to be kept dry, dark, and of an even temperature, where the bees may remain perfectly quiet, and undisturbed, is undoubtedly the more preferable place for wintering. If, however, it is thought, after due consideration, best to winter out of doors, the hives should be protected in some way from the wind, and the cap, or vacant space at the top of the hive, well packed with cut straw or chaff. This packing will absorb the moisture, and at the same time retain the warmth. When wintered indoors, I use a small quilt spread over the frames.

The Honey Crop in Central New York.

The yield, generally, has been below the average, and besides being less in quantity, it is generally inferior in quality, or, rather, in appearance. This is from the fact that it was gathered less rapidly than ordinary, and the combs thus became soiled and yellowish. It does not follow that the flavor is inferior, it is quite likely to be the reverse. Having recently visited the dealers in New York City, and inspected the honey from the aparies of several prominent beekeepers, I find that the average appearance is as stated above. In my home apiary of 150 swarms, I have but very little increase in numbers, and have marketed 2,775 lbs. of box honey, and 6,644 lbs. of extracted. From another apiary, seven miles away, results are better. One of the peculiarities of this location is, that the bees gather no dark honey, and the white honey is of superior quality. In this apiary there were, in the spring, 65 swarms; this number was increased to 100, and the honey marketed was 3,225 lbs. box honey, and 356 lbs. extracted, showing a much better average of box honey than from the 150 swarms above mentioned.

Questions and Answers.

ABOUT VENTILATION.—"W. H.," of Ironton, Mo., asks: "Is it best to close the bottom ventilation, or to leave it open in wintering bees out of doors? There is a 3-inch square hole in the bottom board of my hive, covered with wire cloth."....I am inclined to think that the lower ventilation is not essential, yet there are conditions that seem to make it necessary. The lower entrance to the hive, of necessity, gives some ventilation. The arrangement of this lower opening, so that it may not become closed by dead bees, is of much more importance than the question of lower ventilation. If the hole in the bottom-board were 12 inches square, and covered with wire-cloth, it would not prevent injury, should the small entrance become closed, and the bees find themselves confined to the hive. Some of our best beekeepers make hives with a 6x12-inch ventilator in the bottom-board, which may be opened or closed with a slide. For wintering, these slides may be opened a short distance, leaving the opening in such a position, nearly under the cluster, that the dead bees will drop through, thus avoiding the possibility of its becoming clogged; while the opening is so near the cluster that the bees are aware of their perfect freedom. The hole in the bottom-board, 3 inches square, is large enough, but the wire-cloth should be removed, and a slide used, that may be opened or closed at pleasure.

A Very Unjust Custom.

"James is naturally smart, and we are going to give him an education, perhaps make a lawyer or minister of him."...."George don't seem to get along well with his books—is rather dull—and we shall make a farmer of him."——We have heard talk just like this, and the majority of people *act* upon this principle. It is rank cruelty—rank injustice, at any rate. It is giving to the rich, and withholding from the poor. If through the fault of his parents, or otherwise, George is less endowed with intellectual gifts, he should have all the more done for him to make up any natural defect, by culture, by discipline, by exercise of the mind, and thus place him upon a par with his more gifted brother. If a youth dislikes arithmetic, or any particular branch of study or thinking, it shows a deficiency in that faculty, which culture and study should make up, and thus produce a well balanced mind. We abominate the whole system of "elective studies," now so popular in some schools and colleges, which allows a scholar to mainly cultivate those mental powers, in which he is already most proficient. A rigid course of diverse study, planned to develope uniformly the various faculties of the mind, is the one which will turn out the best and most useful men. After a good general groundwork is thus laid, and the thinking faculties are well and uniformly developed, the final study may be directed to some specific line, that will be required in a particular business, or professional life.

Why It Pays to Read.

One's physical frame—his body—his muscles—his feet—his hands—is only a living *machine*. It is the mind, controling and directing that machine, that gives it power and efficiency. The successful use of the body depends wholly upon the mind—upon its ability to direct well. If one ties his arm in a sling, it becomes weak and finally powerless. Keep it in active exercise, and it acquires vigor and strength, and is disciplined to use this strength as desired. Just so one's mind, by active exercise in thinking, reasoning, planning, studying, observing, acquires vigor, strength, power of concentration and direction.

Plainly then, the man who exercises his mind in reading and thinking, gives it increased power and efficiency, and greater ability to direct the efforts of his physical frame—his work—to better results, than he can who merely or mainly uses his muscles. If a man reads a book or paper, even one he knows to be erroneous, it helps him by the effort to combat the errors. The combat invigorates his mind.

Of all men, the farmer, the cultivator, needs to read more and think more—to strengthen his reasoning powers, so that they may help out and make more effective, more profitable, his hard toil. There can be no doubt, that that farmer who supplies himself with the most reading, the most of other men's thoughts and experiences, will in the end, if not at once, be the most successful.

"The mind makes the man," is a trite but very true adage. How much above the brute that toils with him, is the man who merely works, eats, and sleeps, and cares for his progeny? The brute does all this. The man rises in dignity, in self respect, in the respect of others, just so far as he rises in intelligence. We have a certain regard for the ant, or colony of ants, that by long, hard, patient toil, gathers a fine, large, showy mound of earth—yellow earth it may be, or of silvery white. In what is that man superior to the ant, who spends his life wholly in scraping together a mass of land, and a pile of yellow gold or white silver, and a large house, lives in it, and dies there? He may be called a successful man, a rich man, but what does that amount to after all. If he be rich in good deeds, if he be an intelligent man, if he be able, by the superior cultivation of his mind, his thinking and reasoning powers, not only to plan successfully for himself, but to give wise counsel to others, he commands our real respect.

Farmers, think of these things. Now, and for a few coming months, while the field work does not press, devote *some* time each day or evening to mind development. Lop off, if need be, a dollar or two here or there, and with it buy one or two books, especially those treating of your own business, of the character and nature of the soils you till, of the crops you raise, of the animals you have to do with, their differences and character, etc. This will lead to further thinking and reasoning; it will develope mind-power; it will make you more intelligent; it will raise you higher in your own estimation, and higher in the estimation of your family, and of your neighbors. It will aid you in planning better for the future, and will thus really pay in dollars and cents. Turn to the long list of books on the business pages of this paper, and select some book, first one that will interest both yourself and family. Let it be read and studied well. When its thoughts become your own, lend it to a neighbor and get him to read it. Then choose another book, and do the same with it. Next summer's toil will be more cheerful, you will have more to think of while following the plow, the harrow, etc.; and we firmly believe that a year from now you will have more dollars in your pocket.

Science Applied to Farming.—XXXV.

Potash in Fertilizers.—The Necessity and Functions of Potash as Plant-food.—The German Potash Salts.

I am in receipt of inquiries from farmers in all parts of the country, about the "German Potash Salts," what they are, and when, where, and how it will pay to use them. There are abundant indications that, on many soils in the older States, the available supply of potash has become reduced, and must be re-supplied or the crops will fail. We are having here precisely the same costly and bitter experience that the farmers on the other side of the Atlantic have gone through with. They are beginning to find the way out of the difficulty, and that way leads down some twelve hundred feet below the surface of the earth into the depths of the potash mines in the region of Stassfurt, in Germany. Commencing near there but a few years ago, the use of potash salts as fertilizers has already become almost universal in Germany, has extended largely into other parts of Europe, has reached to the impoverished fields of our own country, and even to the coffee plantations of Brazil and Ceylon. The amount used has increased from a few hundred to many thousands of tons per year. The Stassfurt fertilizers have excited an interest and reached an importance comparable with that to which Peruvian guano attained years ago.

Potash is an ingredient of every cultivated plant, and none can grow without it. In the *American Agriculturist* for March, 1876, were described some elaborate experience by Dr. Nobbe, of Tharand, Germany, which showed that potassium is necessary to the formation of starch in the leaves. As Dr. Nobbe says, "Without starch the plant cannot assimilate (the materials needed for the growth) and shows no increase in weight because, without the cooperation of potash in the chlorophyle grains, no starch is formed." Another function of potash has been pointed out by Messrs. Lawes and Gilbert as one of the results of their famous experiments at Rothamsted, in England, namely, that it aids leguminous crops, such as clover, to assimilate the nitrogen needful for their growth.

The Amounts of Potash in Different Plants and Manures

are, of course, quite variable. Clover, beans, peas, and other leguminous crops, the common grasses, potatoes, tobacco and hops, have a good deal of potash. Turnips, beets, and carrots, contain less, and corn, wheat, rye, oats, and other grains less still, though the stalks and straw contain a good deal of potash. Taking into account the size as

well as composition of our ordinary crops, hay, clover, corn, tobacco, hops, potatoes, and roots, take large quantities of potash from the soil, while grain crops exhaust it less. Of the common manures, horse manure, particularly if it contain a good deal of straw, is quite rich in potash. The same is true of manure from sheep and swine. That from neat cattle contains less. The urine of all these animals has a great deal of potash. Our ordinary commercial fertilizers, such as superphosphates, bone, fish, and slaughter-house refuse, contain little or no potash. Peruvian guano yields a small percentage.*

Sources of Supply of Potash.—The German Mines and Salts.

The soap boilers and glass manufacturers have outbid the farmers for the potash of wood-ashes. It might be obtained from sea-water, but the expense of boiling down would make it too costly. Very fortunately, this process of evaporation of sea-water, which, if carried on by artificial means, would be so costly, has been provided for by nature on an enormous scale in North Germany, and we have the products in the deposits referred to. The area of the deposits is calculated at some 600 square miles. Mines have been opened at Stassfurt, Leopoldshall and Westeregeln. The potash deposits are found at depths varying from 300 to 1,200 feet. Though thousands of tons are mined yearly, the supply can not be exhausted for centuries.

Composition of the German Potash Salts.—High and Low Grade Articles.

The potash salts as taken from the mines contain only small proportions of potassium compounds, the bulk consisting of materials which have comparatively little agricultural value and are sometimes positively injurious. They are, therefore, subjected to chemical treatment, by which the potash compounds are more or less completely purified. As prepared for market, the potash fertilizers contain potassium in the form of either chloride of potassium or sulphate of potash, and, along with these, other compounds, as shown by the following figures from circulars of the German manufacturers.

BRANDS OF POTASH SALTS.	POTASSIUM AND OTHER COMPOUNDS.—LBS. IN 100 LBS.					
	Sulphate of Potash.	*Chloride of Potassium.*	*Sulphate of Magnesia.*	*Chloride of Magnesium.*	*Chloride of Sodium.*	*Actual Potash in Potassium compounds.*
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1. Crude Kainit.....	17–26	—	10 12	14–17	32–40	9–14
2. Crude Sulphate of Potash ("Dung Salt")	18–22	—	16–20	2–4	35–50	9–12
3. Prepared Kainit.....	24	—	16–18	2–4	36–42	13
4. Crude Sulphate of Potash-Magnesia.....	29–33	—	17–22	3–5	30–35	15–18
5. Five-fold Concentrated Salt (Chloride)	—	80–85	1–2	—	12–16	50–52
6. Purified Sulphate of Potash	70	—	5–10	—	5–10	38
7. Purified Sulphate of Potash	90–95	—	3–6	—	1–2	50–52
8. Purified Sulphate of Potash—Magnesia....	54–57	—	34–38	—	1–2	28–30

All the brands contain more or less of other than potash compounds. Of these the sulphate of magnesia may be valuable, since it is useful as plant-food, and further, aids in diffusing the potash through the soil and thus bringing it within reach of the roots of the plants. The chloride of sodium, or common salt, though not needed for plant-food, is useful in rendering other materials available, and hence often quite valuable as a fertilizer. For certain crops, however, like potatoes, sugar-beets, and tobacco, it is apt to be detrimental, probably on account of the chlorine which it contains. The chloride of magnesium may be injurious.

Nos. 1, 2, 3, 4 in the table are low grade articles, furnishing only 9 to 18 per cent of actual potash. The crude Kainit, No. 1, is the material as dug from the mines and ground. The prepared Kainit, No. 3, is made by roasting the crude Kainit. The "Dung Salt," No. 2, is a waste product formed in the manufacture of the high grade articles. Nos. 5, 6, 7, 8 are high grade articles of two kinds, viz., the chlorides or "muriates," (No. 5), in which the potassium is combined with chlorine, as chloride of potassium, or "muriate of potash," as the dealers call it, and the sulphates, Nos, 6, 7, 8, in which it is combined with sulphuric acid, as sulphate of potash; little of No. 8 is manufactured.

It is becoming customary to characterize these salts by the percentages of sulphate or chloride of potassium they furnish. Thus an "80 per cent sulphate" is one that contains 80 lbs. of sulphate of potash in 100 lbs. of the salt. An "80 per cent muriate" would in like manner contain 80 per cent of chloride of potassium.

Most Desirable Grades for Our Use.

It is clear that for this side of the Atlantic the high grades must be the most economical as potash fertilizers. The sulphates are, on the whole, preferable, but the potassium in these is more costly than in the chlorides. The chlorides sometimes injure the burning quality of the leaf of tobacco, decrease the amount of sugar in sugar-beets, and of starch in potatoes, and make the latter less "mealy" than is desirable. The sulphates, on the other hand, are always safe. For buckwheat, corn, wheat, oats, and other grains, for leguminous crops and grasses, and for wet soils, the chlorides are preferable because cheaper. Generally speaking, the most desirable grades will probably be—

For *Sulphates:* the highest grades, which contain from 75 to 90 per cent, or more, of sulphate of potash, corresponding to from 40 to 50 per cent of actual potash.

For *Chlorides:* the "muriate" with 80 to 85 per cent of chloride of potassium, corresponding to 50–53 per cent of potash.

By the above table, the amount of actual potash in the low grade salts, varies from 9 to 18 per cent. Some articles sold in this country have yielded as low as 7 or 8 per cent. The disadvantage in purchasing these poorer articles is a double one. Not only do they furnish very little potash, the bulk being made up of other and inferior or injurious compounds, but the purchaser has to pay the cost of freight and handling of this extra material between the mines in Germany and his farm.

When, Where, and How to use Potash Salts.

As to soils. Whether a given soil is deficient in potash or not can be best told by actual experiment. In general, potash is more likely to be lacking in light, sandy, and calcareous (lime) soils, and in those consisting largely of decayed vegetable matter, like peat and muck beds and moors. It is more apt to be plenty in loamy and clayey soils that come from what the geologists call igneous rocks, such as trap, granite and syenite. But in soils of either of these classes, the available supply may be reduced by cropping. Where guanos, phosphates, bone, fish manures, and other fertilizers rich in nitrogen, phosphoric acid and lime, but furnishing little or no potash, do not bring as large returns as formerly, a trial of potash salts is recommended.

As to crops. The potash salts have proven especially good for fodder crops, like grass and rye; for leguminous crops, such as clover, beans, peas, and vetches; and for corn, potatoes, roots, tobacco, and fruits. The immediate effects upon grain crops are usually not so beneficial.

The method of applying potash salts isof great importance. Cases are common—I have known several myself, where crops were injured or destroyed by improper application. The great point is to have the material uniformly diffused through the soil, so as to be within as ready reach of as many of the roots as possible, and not to be concentrated in single places in such quantity as to injure the plants. The best way to secure this is to apply it some time before the seed is sown in the fall for the coming season's crop, for instance, so that the water from rains and melting snows may have opportunity to distribute the potash through the soil; or to mix with manure by spreading on the heap as it accumulates; or to compost with muck, farm refuse, or earth, and apply as long as possible before the growth of the crop begins. If neither of these ways can be followed, the next best plan is to mix the salts with three or four times their bulk of earth, spread the mixture uniformly, and either plow under or harrow in. Potash salts are best applied, not alone, but mixed with phosphates and nitrogenous fertilizers.

Peruvian guano, ammoniated phosphates, bone and fish, each furnish nitrogen, phosphoric acid and lime, and, if superphosphated, sulphuric acid also. The potash salts supply potash with more or less sulphuric acid and magnesia. Such mixtures, therefore, would form "complete fertilizers."

In Germany, where the potash salts have come into very general use, quantities corresponding to from 200 to 400, or at most 500 lbs. of the higher grades, and from 300 to 600 lbs. of the lower grades, per acre, are recommended. W. O. ATWATER,
Wesleyan University, Middletown, Conn.

*For tables giving the composition of cultivated plants and manures, see Article XVIII of this series in *American Agriculturist* for June, 1876. See also tables in article for Oct., 1877.

Ogden Farm Papers.—No. 93.

BY GEORGE E. WARING, JR.

I now refer back to the first of this series of papers—published in the *American Agriculturist* of January, 1870. I there gave an account of the purposes and intentions with which the enterprise of improving and cultivating the farm had been undertaken (in September, 1867). For the satisfaction of those who have not access to that first paper, I quote the following: "I have this basis to go upon: My land had been exhausted by a long series of robberies that had sapped its very vitality. Henceforth it must take in much more than it should be called upon to give out. Much was to be hoped for from draining and deep cultivation, but in addition to all this, the impoverished soil must receive manure from abroad. * * * * * The details of the plan included *heavy over-stocking* and *fancy prices*. The one should help the improvement of the soil, and the other the money income. The two fundamental themes of the project were these: 1. There is hardly a limit to the productiveness of land. If 50 cows are put upon 50 acres, and kept in good condition by buying food at the outset, their manure will in time make the land rich enough to support them, winter and summer, without buying. 2. *Extra price is all profit.* Given all the appointments of a good dairy, it *costs no more* to make butter worth 75c. per pound than 50c. per pound. No more cows are kept, no more and no richer food is consumed, and no extra help has to be hired. In my neighborhood butter *costs* about 30c. to make; at 50c. there is a profit of 20c., and at 75c. there is a profit of 45c. The 20c. is earned by the investment of capital and labor; the extra 25c., by care, skill, and neatness. * * * * * * The farm was to have ten years rest. It is charged with no extra burdens; it has no expensive family to support, only the household of work-people, who are necessary for its improvement; and it has no income to pay, (except interest on borrowed capital,) as neither my associate nor myself is to receive any compensation during the course of the improvement; * * * * until the expiration of ten years, when the whole concern, farm, stock, implements, and investments are to be sold at public auction. * * * * The amount of profit to be divided, or the amount of loss to be made up, will be the best test, as to whether the work at Ogden Farm has been practical farming or not, for if it does not *pay*, it can not be considered *practical*."

The term of ten years has now expired, and I proceed to the consideration of the results. In one respect, the original plan has not been carried out—we did not wind up the affair with an auction. Mr. Geo. F. Tyler, my associate and capitalist, with my full assent, has deeded the whole property to his son, and it is still to be carried on under my general direction. The accounts are not yet fully made up, nor can they be for some months, but it was clear that the total result would show a considerable loss of money. If my principle—quoted above—is to be adhered to, the work at Ogden Farm has *not* been practical farming. I shall consider this part of the subject in a future paper. I propose first to take up some of the details.

From the very start, our main product—aside from live stock—has been Jersey butter. For more than a year we bought a large amount of milk, to increase the butter product, and we ran a milk-

wagon to sell skim-milk in town. Except for this, there has been very little indeed sold from the place, besides the regular semi-weekly product of butter, and the balance to-the-good in the "Produce sold" account, may fairly be set down as the net proceeds of the sales of butter. The skimmed milk and other sales would just about pay for the milk bought.

PRODUCE SOLD ACCOUNT.

	Dr. to Purchases.	*Cr. by Sales.*	*Net Credit.*
Whole ten years.....	$3,114.85	$23,321.83	$20,206.97
First year.....	No purchases.	826.07	826.07
Last year.....	337.73	2,866.17	2,529.44
Best year, (1873)... ..	1,352.62	5,690.66	4,338.04

The year 1873 is the only single year, for which the account has been made up in detail. This was published in Ogden Farm Papers No. 49 (March, 1874). In this year the sales of butter were rather more than the "net credit" of all sales. We made 5,912 pounds, which we sold for (*net cash*, after deducting all charges for home consumption, expressage, and commission,) $4,472.85, being over 75 cts. per pound for the whole product.

For more than five years past, we have made all of our regular sales at $1 per pound, getting this price for all we could supply at all regularly. Usually in June, with many fresh cows, and with the Newport season not fairly commenced, we have had to sell our *surplus* for less—generally for 50 cts.—and we have always sold from 600 to 1,200 lbs. yearly, through an agent in Boston, on which we have paid 12½ cts. commission. Making all of these deductions, we have never averaged so little, for any year of the past five, as 75 cts. per pound. In securing this result, we have never made any considerable outlay, beyond what would be necessary in the care of any ordinary dairy. Indeed, as we have gone on and gained experience, we have cheapened and simplified our methods from those at first adopted, and I think we now make our butter as cheaply as any tolerably good dairyman in the country. Neither have we gone to any great expense in advertising. We have always taken the utmost pains to have the butter as good as it could be made, to put it up in an attractive form, and to make it known by actual trial. We began selling at 50 cts., and we took measures to get it into the hands of people who could appreciate it. We raised the price first to 65 cts., then to 75 cts., to 90 cts., and to $1—and there it has remained for five years past. Customers sometimes suggest that we ought to conform to the usual lowering of prices, but they rarely enforce the suggestion by stopping their purchases; when they do so, there is always some one else ready to succeed them. It would be pure guess work for me to say to what an extent this business might be carried, and any one else can guess as well as I can.

If butter-making had been our chief industry, we should have made fully fifty per cent more than we have, and I think I could have disposed of it all at the same price. Butter-making has always been incidental and subordinate to our business of raising and selling Jersey cattle, so that we have always kept some cows which were no longer of much use for the dairy, for the sake of their calves, and we have kept all in fair breeding condition, when by higher feeding we could have added very much to their butter product. It has been our aim to render the butter-making incident an important incident. I think it will be admitted that in this branch of our work we have been successful *and practical.*

Really the most important question about our enterprise, relates to the character of the soil, as affected by our course of treatment. For ten years we have bought very nearly all the grain fed on the place—and we have averaged the equivalent of 25 to 35 cows. For three years we bought nearly all of our hay; for three years more we bought about one-half of what was used; and for the last four years we have bought very little hay or forage of any kind. The total cost of the purchased food will be given in a future number of this series.

During all this time we have practically sold nothing from the farm save butter, a little skimmed milk, and a moderate number of cattle. When we began, the land was as poor as it could well be—so poor that the hay crop amounted to very little indeed. The first year we did not cut the equivalent of ten tons all told. In 1876 the land (60 acres) was divided about as follows: yard, house, and barn-lot, garden, etc., 4 acres; fodder-corn, 6 acres; oats, (cut green), 6 acres; grass, 44 acres. The crop of hay and cured oats (so much as was not fed green) was over 95 tons, although the latter part of the season was so very dry that there was no second crop at all. In an ordinary season we should have had at least 20 tons. The crop of 1877 has been very poor so far as hay was concerned, (although the oats were a capital crop, and the fodder-corn very fine). The failure of the grass crop was not due to the quality of the land, but to the fact that the drouth—and the immense cloud of grasshoppers—of 1876, entirely destroyed the grass. Where we cut 2½ tons of hay to the acre in 1876, we had cut a half ton of weeds in 1877. We have always cut some of the early grass for soiling—less this year than usual.

How much of the improved condition of the land is due to draining, and how much to the large amount of manure made on the place, can not be determined. Both have been important. About six acres was, some 7 or 8 years ago, plowed about twelve inches deep. The subsoil of blue clay, which was brought to the surface, was a lasting injury to the land. It still shows the ill effect of the treatment, in spite of time and manure. Certainly in this case—and I think many other similar instances could be found—deep plowing was a grave mistake, and it will be well for all enthusiasts who are disposed to follow the extreme theories of the deep plowers, to study very cautiously the character of the subsoil which they propose to bring to the surface. I confess to having been an advocate of these theories for many years, and I have seen them sustained on certain soils, but I have slowly come to the belief that it is usually the safest plan to leave the "surface soil" where nature made it, and where she always keeps it in her most fertile forests and fields.

Tim Bunker on the Canning Factory.

"Have you heerd on't," asked Uncle Jotham Sparrowgrass, one evening last winter, as he walked into our sitting room, and sat down by the stove—"we are gwyne to have a factory in Hookertown, next summer, to put up tomatoes and apples, and all sorts of fruits and vegetables, in tin cans."

"Want to know!" exclaimed Mrs. Bunker, raising the gold-bowed spectacles that Josiah, our son-in-law gave her, "where did you get the news?"

"Deacon Smith told me so over to the bank today—capital is all raised and money all promised whenever they are ready to begin. They used to have the same kind of thing over on the Island more'n thirty years ago, only they used glass cans instead of tin, and the work was done at home instead of in a factory. Don't believe they'll du it any better now—ye see if they du—Mrs. Sparrowgrasses presarves will never be beat in our day."

"It will be just like the sorghum mill started here in war times—see if 'taint," said Jake Frink. "They made a great swell, and you'd 'a thought that Hookertown Street was gwyne to run with merlasses. The thing went up in tu year, and now yer can't git any kind o' decent sweetening short of fifty cents a gallon; I don't take any more stock in that sort of thing."

"Nobody expected you would," said Seth Twiggs, dropping a live coal from the stove on the bowl of his meerschaum, "your capital is already invested down to the gin palace."

"The age of merikles ain't past yit, is it?" said Tucker, in a meditative mood.

"I wonder if there'll be any rum made of the leavings?" inquired Jones, expectantly, recalling his experience on a sugar plantation.

"Not a bit of it," said Seth, with a merry twinkle in his eye, and an extra puff at his pipe, that by this time was in full blast. "Suckers will go dry around the canning factory when they git her started. Ye see they work up the skins and leavings of the termarters into catchup according tew the Scripter, 'gather up the fragments that nothing be lost,' as Mister Spooner would say."

This conversation of my neighbors, last winter, was the first I heard of the new enterprise. On further inquiry, I learned that a Hookertown young man, named Rudd, had been in Jersey for several years, working at the business in a factory there, and was coming home to set up for himself. I liked this for two reasons. It was a new industry, and would help the town, and then it always looks well to see a Hookertown boy, when he gets started in life, coming back among his old neighbors and friends, to help himself, and help them get ahead in the world.

Rudd had got some money, and, what is better, had learned the business, and got a good name for capacity and integrity in carrying it on. So he passed muster at the bank, and the neighbors who had money, like Deacon Smith, and myself, took stock, and those who had brains, and not much money, like Mr. Spooner and the Schoolmaster, talked in its favor at the Farmers' Club, and men, like Jones and Tucker, who had neither brains nor money, threw up their old hats and hurrar'd for the factory that was to be. A few old stagers, like Uncle Jotham Sparrowgrass, and Jake Frink, hung on the outskirts of the movement, and tried to make backwater. But it didn't amount to any more than a row boat in the wake of a Connecticut River steamer, coming down when the steam is all on, and the tide is in her favor. The thing ripped right along just as if nothing was the matter.

The first thing Rudd did after the capital was taken, was to get the farmers around Hookertown to agree to raise tomatoes. He said they were just as easy to raise as corn or potatoes, the crop was just as certain, it did not exhaust the soil near as much, and would pay better for the labor. Then he distributed the seed, and told them how to start the plants in hot-beds, and when to put them out. There was a great stir in Hookertown, and tomatoes was the town talk all through the spring. The general inquiry on Hookertown green, between the meetings on Sunday, was, not "How is your folks"? but "How's the plants getting along"? and "how many are you gwyne to put out"? Mr. Spooner, I suppose, did not know any thing about the worldliness of the people, but thought they were discussing the sermon, or other things of the kingdom. Meanwhile the factory was put up on the Shadtown road, just on the edge of the village, where there is plenty of elbow room. It is a plain cheap building, with ample space upon the ground floor, and a half story above for storing cans after they are made. Fifty thousand cans require a good deal of room, and these can be made and stored when fruits and vegetables are out of season. Every body went to see the new factory, with its broad ten-feet platforms all around it, to hold the fruit; the thousand or more bushel boxes piled up to the eaves; the steam engine; the tanks for scalding, and the bigger tanks for cooking; the patent sort of sausage stuffer for packing the tomatoes in the cans; the soldering machine where a boy seals two cans a minute all day long; the grinder where they work up the refuse, and make elegant tomato catsup. It was about as good as going to the menagerie to go to the factory, and see Mr. Rudd show up the various contrivances of the canning business to our women folks. They all wanted to see, and said they guessed Mr. Rudd understood the business.

Jake Frink said "He didn't know but the feller's head was level, arter all, but he wasn't gwyne to plant any termarters this year, any how."

Well, the factory has been running through the season, and the talk on the green now, between meetings, is, "How did yer termarters turn eout?" The yield runs anywhere from two to four hundred bushels, according to the manure and cultivation given to the crop. At four hundred bushels, at 30 cents a bushel—the gross amount is $120 an acre. There is a good deal of labor in picking, and marketing, but not more than in the potato crop. It has this great advantage, that it is disposed of directly from the field, has to be handled only once, and brings ready money on delivery. The factory

has not only taken up all the tomatoes raised in this vicinity, but has a great many from New York to be canned here. It has also made a good market for all the pears in Hookertown, where this fruit flourishes, and can be raised in any quantity. At present it is taking in apples, pippins, greenings, Baldwins, and the wind-falls of most good winter apples. These are put up in gallon cans for pie-apples, and mostly shipped to European markets, where there is said to be great demand for this kind of canned goods. Another season a much wider range of products will be taken in, and I expect Jake Frink will be converted, and run a truck wagon. So you see, Mr. Editor, the report that Seth Twiggs' funeral had been attended by Mr. Spooner, and Uncle Jotham had emigrated to the unknown country, and Hookertown in general was ailing, is not correct. We are all here, and things is lively. The good time has come.

Hookertown, Ct., Oct. 1st, 1877. } Yours to command. TIMOTHY BUNKER, Esq.

Country Cottage, Costing $450 to $550.

BY S. B. REED, ARCHITECT, CORONA, LONG ISLAND, N. Y.

This plan is in response to many calls for very low-priced country houses, "some as cheap as lumber and nails can make them." The present one approximates that point, and will aid in devising others.....Two **Elevations** are given for the same ground plan; the first (fig. 1) is for a one-story house of the simplest design, with an entrance door, a neat porch, and two windows in front. The rear is arranged similarly. The roof is conspicuous, in keeping with its importance. No matter how cheaply one proposes to build a house,

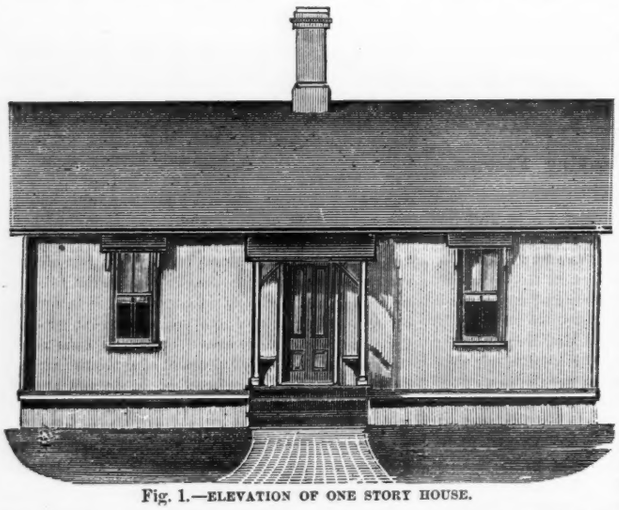


Fig. 1.—ELEVATION OF ONE STORY HOUSE.

it is essential not to slight the roof. A roof fit for a one-story cottage, would answer equally well on a three-story house, so that relatively the cost of this part becomes greater, as the other parts become reduced and cheapened.....**Ground Plan,** (fig. 2).—The accommodations are quite sufficient for a small family, consisting of three rooms, two lobbies, a kitchen pantry, and a clothes press. The Lobbies protect the rooms from direct contact with the outside doors. The Living Room is large, and accessible alike from each entrance; it has windows front and rear, and is convenient to the Pantry; one entire side is unbroken, giving additional space for furniture, etc. The Pantry is shelved on two sides, and has a sash opening from the rear lobby, receiving light through the sash over the rear entrance door. The front Bedroom is of good size—large enough to be used as a sitting-room; it adjoins the rear Bedroom, and a Clothes-press, and has a window facing the road. The rear Bedroom is the most retired, and has a window looking to the rear. The Press or Closet is shelved and hooked in the usual manner. The door between the bedrooms might be dispensed with, but its convenience more than repays its cost.....**Construction.**—The Foundations are of common stone and mortar, laid in trenches, so as not to be affected by frost, and show 1½ foot above ground. The supports for the central partitions are stone piers, 4 feet apart. The Chimnies are of hard brick and mortar, passing through the first story in two flues, but joined together beneath the roof, and finished above as a single chimney. All the timber of the exterior frame is of 4x6 inches spruce. The sills are laid flat-ways on the foundation, and the upright frame-work stands upon them. The beams are of 1½x8 inch spruce planks, they are notched 4 inches, to fit on the sill, and bear on the foundation, and are nailed to the studding and sills, binding the whole together. The ceiling strips are of 1½x5 inch spruce, resting on the ties, and nailed to the studding. The rafters are 2x4 inch wall strips. All beams, studding, and rafters, are placed 16 inches apart from centers. The siding is of 10-inch dressed pine. The roof is covered with 18-inch pine shingles, laid on 1½x2 inch shingling lath. The porch frame is of dressed and cornered timber, and is roofed with shingles on flooring laid face down. The flooring is 1½x9 inch spruce "milled." The interior is plainly cased: for doors and windows 3½ inches wide; base 6 inches; chair back in the living room 3 inches; all beveled. All sashes and doors are 1½ inch thick. The interior side walls and ceilings are white sand finished, on brown mortar and seasoned lath. Many efforts have been made to devise something cheaper than plastering for the inside lining of walls, but no substitute has yet been found to equal it in cheapness or durability. Plastering as usually prepared and applied, conduces to the healthfulness of any apartment, emits no odors of moldiness, has no attraction or harbor for vermin, is impervious to air, and a non-conductor of sound. Where linings of thin wood or paper are used, it is necessary to deafen the partitions and ceilings, otherwise they will be noisy. Sound made in any one part will reverberate through the house with drum-like suggestiveness. Most of such materials absorb moisture rapidly from the atmosphere, and when at any distance from the house-fires, so as not to be warmed and dried, the moisture is retained in them. This is especially the case in chambers and closets. Rather than seek a substitute for plastering, it is better to extend its use, and if practicable apply it as an outside covering, as well as for inside linings. (I will describe such an application in another article.)....

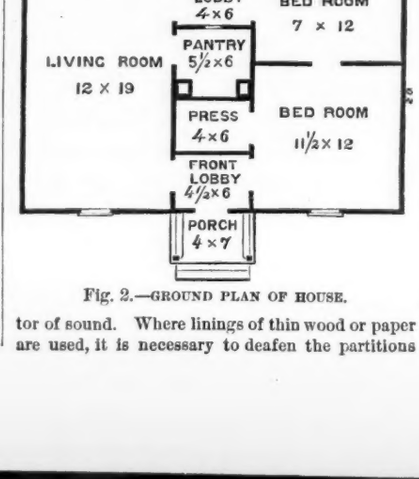


Fig. 2.—GROUND PLAN OF HOUSE.

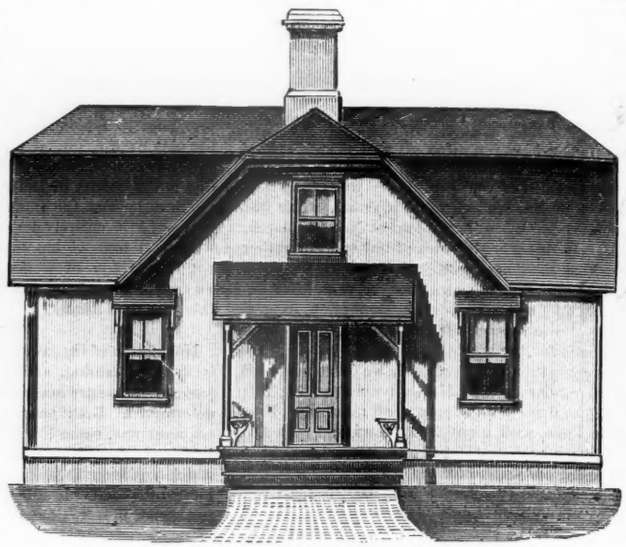


Fig. 3.—ELEVATION OF STORY AND A HALF HOUSE.

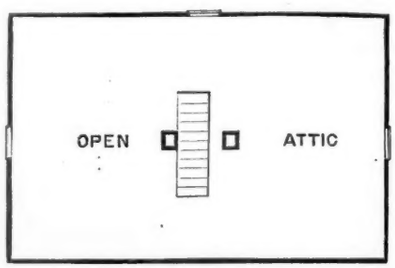


Fig. 4.—SECOND FLOOR.

The **Second Elevation,** (Fig. 3,) shows an enlargement of the first, by increasing the outlines of the roof, giving space for a **Second Floor,** (Fig. 4). Such space, though not immediately required for bed-rooms, would be valuable for many purposes. The appearance of the building is improved by the enlargement, and the extra cost will not exceed one hundred dollars.

Cost of Cottage—No. 1:

468 feet stone foundation, at 5 cents per foot	23.40
1000 bricks in chimneys, laid, at $12 per M	12.00
270 yards plastering, at 25 cents per yard	67.50
576 feet of timber, at $15 per M	8.64
2 sills, 4x6 in. 80 feet long. / 2 sills, 4x6 in. 32 feet long. / 2 plates, 4x6 in. 20 feet long.	2 plates, 4x6 in. 32 feet long. / 4 posts, 4x6 in. 10 feet long. / 2 girts, 4x6 in. 20 feet long.
160 wall strips, at 13c. each	20.80
56 rough plank, at 16c. each	8.96
70 flooring, at 20c. each, $14; 115 siding, at 25c., $28.75	42.75
156 shingling lath, at 6c. each	9.36
27 bunches shingles, at $1.50 each	40.50
Cornice and porch materials	21.00
4 windows, at $5 each, $20; 9 doors, at $3 each, $27	47.00
Closet finish and nails, $26.09; cartage, $12	38.09
Carpenter's labor, not included above	60.00
Painting	50.00
Total	$450.00

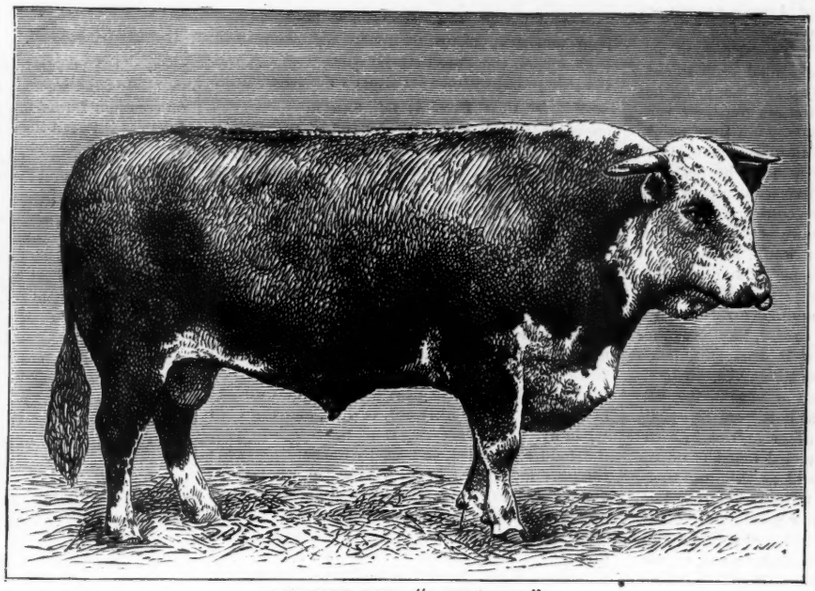
Extra cost of Cottage—No. 2:

3 windows, at $5 each, $15; 70 flooring, at 20c., $14	29.00
25 siding, $6.25; 19 rough plank, $3.04	9.29
23 shingling lath, $1.38; 4 bunches shingles, $6.00	7.38
25 wall strips, $3.25; 400 brick, $4.80	8.05
Timber, $5; stairs, $20; porch, $5	30.00
Carpenter's labor	16.28
	$110.00

[Of course the architect had in view the cheapest possible house, but it will occur to almost every one, that to extend the porches, to form verandas at the front and rear the whole length, will greatly add to the comfort and convenience of the family, and not add very much to the cost.—ED.]

The Hereford Breed of Cattle.

The white-faced, brownish-red cattle, known as Herefords, are one of the old established breeds. They have an excellent reputation as beef cattle and as milkers. For both of these useful purposes they are well adapted, by reason of their remarkably quiet disposition, which is evinced by their mild eye and placid deportment. A contented, docile animal is a profitable feeder, as little of its food is spent in nervous excitement, or accompanying restless action. For this contentment the Hereford is conspicuous amongst the best classes of cattle, if indeed it does not surpass every other competitor for the favor of the feeder, the dairyman, or the butcher. This breed is second only to the Shorthorn as a beef animal, when kept under equally favorable circumstances, but when placed in somewhat inferior keeping, it is preferable to it. For second-rate pastures, and in the hands of farmers who do not wish to feed up to very great weights, the Hereford will excel the Shorthorn. When used for the purpose of grading up inferior native stock, bulls of this breed are sometimes preferred to the Shorthorns, and they are becoming very popular in Colorado for this purpose. Since the extreme popularity of the Shorthorn during the past few years, the Hereford has fallen into the background, along with every other sort of beef-stock; but now that this Shorthorn excitement has passed away, each race of cattle has a fair chance to take whatever position in the public favor it may deserve, or can attain and keep. The Herefords are, therefore, now being brought into notice, and will, without doubt, acquire many friends among those breeders who are engaged in improving the coarse native cattle. There are now many good herds in different parts of the United States. One town in Illinois, viz., Beecher, Will County, has the distinction of possessing three herds, owned by T. L. Miller, who exhibited some fine animals at the Centennial, Wm. Powell, and Thomas Clark. Another good herd is owned by G. S. Burleigh, of Mechanicsville, Iowa. There are one or two herds in Ohio. At the New England Fair, these herds, owned in the State of Maine by C. A. McKenney, Munroe; G. E. Shores, Waterville; J. S. Hawes, South Vassalboro; G. and G. Underwood, of Fayette, received premiums.

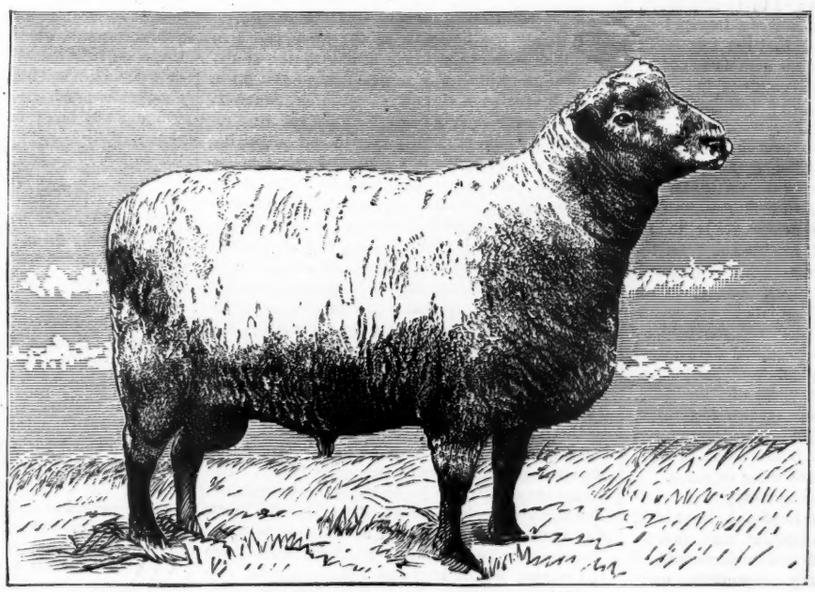


HEREFORD BULL, "LITTLE BILL."

The Hereford Bull, of which we give a portrait taken from the "Agricultural Gazette," is owned by an English breeder, Mr. E. J. Lewis, of Breinton. This bull, named "Little Bill," took the second prize at the Herefordshire Agricultural Society's meeting. The portrait is copied from a photograph, and therefore is a faithful representation of what the animal really is. The breed is noted for the excellence of its flesh, in which the fat and lean are intermingled, and not placed so much in layers, as in the fat Shorthorn. There is a smoothness and roundness about the carcass, which is well shown by this portrait, and which indicates profitable cutting up, with little waste or offal. The cows are generally good milkers, and yield good butter, and the calves are hardy and grow rapidly, when properly cared for. The regularity of color and form is very close in this breed, and a well-bred herd will differ very little in their markings. The white face is the most distinguishable feature.

Oxford-Down Sheep.

The Oxford-Down ram, whose portrait, copied from a photograph, is given on this page, has a history that is interesting to American readers. The ram is the "Royal Liverpool," and the first-prize animal in his class at the Royal Agricultural Society's show at Bath. This ram, with three others, all the property of Mr. Treadwell, of Winchendon, England, are the progeny of the ram "Freeland," also owned by Mr. Treadwell. "Freeland" is now in the possession (although not the property) of Mr. T. S. Cooper, of Coopersburg, Pa., Mr. Cooper having rented the ram for the coming season from Mr. Treadwell, for the sum of 85 guineas, or nearly $450. This ram has received many first prizes, and his offspring have also been successful prize-winners. For the four rams above referred to, Mr. Cooper offered $2,000, which their owner declined. This fact indicates the value placed upon these animals in England, where the Oxford-Down has become very popular. In this country it is rapidly becoming a favorite sheep, occupying a place midway between the short and long wools, as regards fleece, and an equal one at least as regards mutton, with the Cotswold. In some respects the mutton is preferable to that of the Cotswold. Mr. Cooper, who has the ram "Freeland" now in his possession, is one of our most enterprising breeders, and has imported some of the best stock now in this country. In procuring the best possible Oxford-Downs, he is doing this excellent breed only fair justice, for although it has already made a good start here, and several good flocks are now owned in the country, yet there is room for some of the best blood to keep up the standard of quality, if not to advance it.



OXFORD-DOWN RAM, "ROYAL LIVERPOOL."

THE PRODUCTION AND DISPOSAL OF EGGS.—An egg contains more nutriment than any other substance of the same weight. At the same time, the market price of eggs is comparatively lower than that of flesh. A pound of eggs is also produced at a less cost than a pound of flesh. Considering the importance of the poultry products of the country, there is by no means sufficient regard paid to them. The stock of profitably productive poultry, as compared with the whole quantity kept, is small. As compared with the whole, the number of hens that produce 100 eggs in a season, is small in proportion. Yet 150 eggs are frequently laid in a year by hens of the improved breeds, and by common hens that are well fed and kept. The preparation of eggs by a recent invention for drying or, as it is called, "crystalizing" them, a process in which the work is done by machinery, has very largely increased the market for them. The dry product is imperishable, and, when packed in tin boxes, may be shipped to the most distant countries, or carried on ships through the longest voyages. No doubt this new use for eggs will increase the demand for them when the manufacture has become thoroughly established, and that it will be a profitable business for farmers to keep better poultry and improve, so far as possible, their present methods of keeping their fowls. Suggestions to this end will be found every month in the *American Agriculturist*.

Among the Farmers.—No. 22.

BY ONE OF THEM.

Green Manure Crops.

When I first went to farming on these gravel hills, the subject of green manuring was considered, and has constantly come up; but I have never been "forehanded" enough, or have never had the moral courage, perhaps, to plow in a good crop of clover after there was a show of a good crop to cut; and to tell the truth, my only green manuring has been worn-out sod, a crop of rag-weed, or self-sowed oats. I have followed my old fogy neighbors in this matter, though a thorough advocate of systematic green manuring as the cheapest and most rapid way of bringing up worn out or poor soils.

Earth and air, and sunshine, contribute and combine to furnish fertility—manure—evenly distributed, at no greater cost than it would be to cart it from a compost heap in the same lot and spread it. That is, at the cost of plowing and harrowing, and possibly rolling flat after the crop is grown. Then it is to be plowed under, of course, like any other manure. Whatever fertilizer is used to quicken the crop, may be regarded as an application by itself, for none of it is lost, but it benefits the succeeding crop just as much as if it were especially applied to it, and does the other service into the bargain. The crop to be selected depends on the land and its condition, as well as the crop to be produced. Hereabouts we want to keep the land in grass so long as it will grow good crops of hay, and this is really the object, end, and aim of all our farming operations. We turn under a sod, manuring well, and plant corn, follow it with potatoes, and rye or oats, seeding down to grass. Our grass crop holds the ground for three to five years, according to the seasons, and how it is treated. A little summer top-dressing pieces it along a year or two, but it must needs be taken up again before long, and so the potatoes and turnips, small grain and corn, are uniform *incidentals*, which indeed we could not do without, but which are nevertheless entirely secondary to the hay crop.

The Southern Cow Peas.

This crop is one of which we get our knowledge from the Southern States. There it is used as a green manure crop, as a green forage crop, and as hay; for either purpose it is said to be admirable. Cattle eat it freely, and it produces a tremendous yield of fodder. Certain it is that the amount of green material produced on an acre is amazing. The cow pea is, so far as a layman can judge, no pea, but a bean. [See *American Agriculturist* for April, 1876, for description.—ED.]

I was indebted to Mr. J. M. Gleason, the well-informed seedsman at R. H. Allen & Co.'s, for the intelligence that several acres of the variety known as "Clay Pea" had been grown in Monmouth Co., N. J., and that they were nearly ready to be plowed under. We planned to visit the farm together, and it certainly was a very interesting and instructive excursion. On approaching the farm we encountered one field. There may have been 7 or 8 acres in it, and the peas covered the field, so that the ground could not be seen, nor the faintest color of it, even where the plants were most erect. Where they were lodged, as most of them were, they formed a dense mat one or two feet thick. No sunlight could penetrate to warm the soil, not a weed could start, and as a fallow crop and weed killer, I can hardly imagine any thing superior.

It seemed to us a serious undertaking to get such a crop under ground, but our host made light of it, and we were glad on his account, at least, that he could enjoy the rapid growth and immense bulk of green manure, daily and hourly accumulating upon his soil, without that bugbear before him. The plan was to roll it down as flat as possible, and then plow it under with a chain. Of course a very sharp coulter is needed, and a revolving coulter, which may be made to take a sharp edge, will not do, for the vines are so tough that the revolving coulter rolls up on them, and brings the plow out of the ground. I was unable to go down to see them plowed under, but learn it was not so easily accomplished as was supposed. Still under it went, and with power enough before the plow, and a good heavy chain to drag the tops under the furrow slice, as it is thrown off from the mold-board, an immense mass of vegetation can be buried.

The ground on which this green crop was raised, had been cropped for years with potatoes; then seeded down with some grain crop, and for several years had lain in grass. The sod had become very poor, and in spots utterly gone. No manure had been added, the sward simply turned under, and the peas put in with the "Farmer's Favorite" drill.

Cow Peas at the South,

are regarded as a crop little dependent upon moisture. No doubt seasons favorable for growth are an advantage. This summer the ground has not become dry a single time. Every few days powerful showers fell, and all vegetation fairly jumped. However, our friend, who has used Cow Peas for years at the South, says he has repeatedly seen a heavier crop. Green or dry, cattle and sheep are fond of it and thrive upon it. It affords the Southern farmer almost absolute protection against the grasses which fill and almost make a sward as soon as he has laid by his corn crop—that is, as soon as he can no longer use the plow and cultivator. At the last going over the peas are sown, and worked in with the plow, cultivator, or hoe, and the corn "laid by." At harvesting time, the corn is topped, the fodder gathered, and finally the ears plucked; the peas meanwhile being trampled down by men and beasts. Still they thrive, and afford a good manuring for the following wheat or other crops.

The only notice I can find of this plant in any book, is a brief reference to it in "Allen's New American Farm Book," a book, by the way, to which one need rarely go in vain,—here it is said to be particularly adapted to clay soils, but requires one dry and mellow. It will not ripen seed economically in this latitude, but requires the longer season of Virginia. I learn from Mr. Gleason, that there are a large number of varieties, and among these many distinguishable from one another by the form and peculiar markings of the beans themselves. One of the earliest kinds used is the "Whippoorwill," a favorite variety in South Carolina, and named from the beans (or peas) being marked very much like the bird of that name.

On this fine farm one might almost imagine himself in the fabled

Horse Kingdon of Gulliver,

for certainly the horses were the lords, and men were their servants, as much as among the Houyhnhms—everything was subservient to the horse interest, and the sleek and graceful thoroughbreds certainly gave their generous owner the best reward they could, by thrifty growth and superb development, and by the numerous and ever increasing number of cups and purses won at the races. Now timothy is essential to horses. The timothy sod needs to be frequently renewed to produce hay of the best quality. Corn is therefore a necessity as the best breaking up crop. Cows are needed to eat the cornstalks and convert them into manure. Rye follows the corn, and pigs and cows consume this with the corn, hence pigs are a necessity, and besides, they consume the milk. No oats that this farm can produce are good enough for these horses, hence those from a moister climate are procured. They must weigh not less than 35, preferably 40 lbs. to the bushel. Had the owner known what a season we were going to have, he might have raised his own oats—mine are as plump as barley. The horses are all kept in loose boxes, on the ground. The manure is cleared away daily, and the earth floors removed and renewed as often as need be. The cows are kept under the hay barn, where there is a manure cellar, deep and lofty, ventilated and lighted on all sides. They are foddered in racks, and are expected to consume and convert into manure all the corn-fodder, and work over the horse manure, which is spread under them.

The cows were at pasture, and only brought up to be milked, so we did not see how they got along in their rather unattractive quarters. Whether the unattractiveness is only imaginary, or whether there is any positive evil effect upon the cows from standing in and treading down this mixture of manure and litter, I do not know. This much is certain, they are vastly better off than the

Cows in Most Country Barn-Yards,

lying in their own filth, poaching up the mire and muck, into which they sink knee deep, and at times almost wallow; their flanks and sides loaded with dung-like scale armor one or two inches thick, and even their udders only free from it in case they are milked by a person of more than ordinary neatness. That is surely no over-drawn picture; but precisely what we may and do see all winter long on common farms the country through. The differences between these practices and

Dr. C. R. Agnew's System,

is noteworthy, and I am led to speak of it because, theoretically, it is so different from that of our friend, who despises cows, and pets thoroughbred horses, in old Monmouth. Dr. A. lives upon the crest of the Palisades in Rockland Co., overlooking from the south that beautiful expanse of the Hudson called Tappan Zee. He delights in a choice herd of beautiful Jerseys. All of them are pets, all are friendly, gentle creatures, fawn-like and delicate in look and temper. They are stabled at one side of a paddock of several acres, including an apple orchard. The time honored barn-yard is abolished. During the grazing season they are housed only while milked or during storms. In the winter they are stabled as usual. The manure is removed from behind the cows several times daily, and once a day the cart comes along and all the manure is thrown into it and taken away to a compost heap, out of sight and out of smell of the stables. The Doctor claims that his cows enjoy perfect health, and always have done so, that they are free from even the ordinary ailments—colds and fevers—as well as from those of dangerous character, and that they always have been, ever since he adopted the system of removing their droppings, and keeping them constantly in a sweet and pure atmosphere. He claims too that the milk is purer, and the butter better flavored, and in this he certainly is right. I do not know that I can attribute his exemption from disease altogether to this cause, for I have an old-fashioned barn-yard, not always of the sweetest, and my cows are never sick, and never have been, barring now and then a touch of garget, and once a wrong presentation at calving. In discussing the subject, Dr. A. uses the *argumentum ad hominum*, saying, "would there be any doubt in your own mind, whether it would be healthy or not to live surrounded by excrementitious substances, or even within smelling distance of them?"—"The cow has as much an artificial nature as has man, and ought to be guarded in the same manner from causes of disease."

I do not think the racing-farm system so objectionable. The manure is solidly packed by the feet of the cattle, there is little fermentation, it daily receives additions of dry material, and the cows are kept perfectly clean. On the south side of the pit the large windows are always more or less open. The amount of litter, rye straw, with the horse manure, is very large, so that were it not that the cattle pack the mass so thoroughly, it would be necessary to wet it occasionally, or it would heat. As it is, no odor of ammonia has ever been perceived, and the manure which comes out in the spring is of excellent quality. Our friend disclaims any originality in his plan, but says that it is practised in Denmark and Austria, and it is, in fact, not unlike the covered cattle yards now common in England.

There was much besides on this Monmouth farm that interested me, and with which I might fill half a dozen such letters. The marl pits, the broad fields of corn, and rye, and carrots. The superb horses and breeding mares with their foals, the race horses, gaunt and greyhound-like. The level race course, and many other things. Besides there is a new and well arranged pig-house, some nice Berkshires, and some Poland Chinas, looking much like Berkshires. There is, however, one thing,

The Hay Barn,

on which I must dwell a moment. How large it is I can not say, for I made no memoranda, but I should say 60x100. The roof rests upon the plates

with no central supports, leaving the whole floor unobstructed by posts, so that wagons when driven in may go to any part of the building, and there deposit their load of hay. Horse-forks are used to elevate the hay in making mows, and ventilation is secured by making all sides of the barn serve as ventilators. Thus, the side walls are 10 inches thick, 2-inch plank being used as joists. Upon these the clap-boards are nailed on the outside, and inside 1 x 2-inch laths are nailed about a foot apart, horizontally, all around, and from floor to eaves. A contrivance well worthy of imitation.

One Thing about the Carrots

is worthy of notice. It is a fact that the heaviest and best carrot seed is sowed the first year in good soil, producing plants which, if they have an especially favorable season of growth, often seem to revert to a semi-wild habit, and throw up a flower-stalk, bloom, and bear seed the first season. The same seed, if kept another year, will produce solid good roots, with no tendency to run to seed. This is not generally known. A good seedsman will rarely trust carrot seed over two years old, and this running to seed so rarely occurs, that the best sell carrot seed habitually the season after it was grown. The carrots on this farm looked finely, so clean and thrifty—scarcely a weed to be seen—yet they had this trouble, many were going to seed, and the mystery could not be solved except by casting blame upon the seed grower. The conclusive test of the excellence of this very seed, would be the fact that the same seed would do well, and show none of this tendency, if tried another year.

Talks on Farm Crops.—No. 9.

By the Author of "Walks and Talks on the Farm," "Harris on the Pig," etc.

"A. E. M. C.," of Pa., reminds me that some years ago I said something in the *American Agriculturist* about sowing rape. He wants to know if I found it a profitable crop. Taking everything into consideration, I thought it a decidedly useful crop, and some others who tried it, reported favorably.

Mr. C. also asks, if it "is good for soiling cattle?"—I should think not.

"Is it good," he asks, "to plow under as a green manure for vegetables?"—For this purpose white mustard would be better.

The chief value of rape consists in its hardiness. It will stand frost better than any other green crop I have ever grown. I raised it solely for the purpose of affording my Cotswold sheep a bite of green food in winter. I wanted to give them exercise. The rape was sown in July. The crop kept on growing until winter set in. The frost did not hurt it, and we let the sheep pasture on it all winter. We did not have very much snow, and the sheep pawed the snow away, and managed to get at the rape. There were very few days during the winter that the sheep did not, of their own accord, walk to the rape field, and remain until three or four o'clock in the afternoon, when they came back to the barn. The exercise and the green food were just what the breeding ewes needed to keep them healthy. We had unusually strong lambs in the spring. The sheep were foddered twice a day with straw and corn-stalks, and a little bran or grain.

In the more southern sections of the country, I I should think rape might be grown to advantage for winter pasturage, but at the North I doubt whether it will be generally profitable. If it was not for affording the sheep fresh air and exercise, I should not grow it. Corn fodder will furnish much more nutriment per acre, and mangel wurzel will give us all the green food the sheep require.

Mangel wurzel will be the great root crop of the United States. It will stand our hot summers better than Swedish turnips, and, if the land is rich enough, will produce a far larger amount of nutriment per acre. Mangels will keep longer, and become more valuable the longer they are kept; they are worth more in April and May, than in the winter.

"You mean by that," said the Doctor, "that you can use them at that time to better advantage."

"Not only that," said I, "but the mangels themselves are more nutritious. They contain less water, and more sugar, as they become 'riper.' By keeping them in a warm cellar, you can ripen them in January and February, but if pitted in the field, or kept in a very cool cellar, they are not in their prime before the middle of March. And at this time they are of great value for ewes and lambs, or for milch cows, or breeding sows."

"No doubt they are valuable," said the Deacon, "the trouble is to grow them. My seed this year did not more than half come up, and I have a thin crop—but what I have are good. I sometimes think it would pay to raise them merely for their leaves. There is nothing my little pigs like better."

The great mistake we all make in raising mangels is in not getting the land ready the fall previous. We ought to plow the land in August, and again in September or October, and between the plowings harrow and cultivate, to kill surface weeds. If the land is a strong loam, I would, in this climate, apply the manure in the fall, the earlier the better, and work it thoroughly into the soil, and in November I would plow the land, and get it all ready for planting in the spring—of course, doing the work only when the land was dry.

Had I adopted this plan last fall, it would have been several hundred dollars in my pocket. I plowed my land last fall, but did not manure it, and this spring I had to plow it, and then ridge it, and spread the manure in the ridges, and cover them. Our springs are too short for this kind of work. I did not—and could not—get at the mangel land, until we were through sowing barley and planting potatoes and corn, and when we got ready to plant the mangels, the ground was so dry that much of the seed failed to germinate. The longer I farm, the more I am satisfied that we must prepare our land for spring crops in the fall.

"When I was in England," said the Doctor, "I asked an intelligent farmer, what he considered the greatest improvement that had taken place in English agriculture during the last half century. He replied, 'the steam scarifier, and the use of artificial manures.' He did not think steam was so much cheaper than horses, but it did the work quicker and better. As soon as a crop was off, the stubble could be scarified, or, as we would say, cultivated. The light lands could be sown to late turnips, or rape, or mustard, and the heavy lands could be worked and got ready for spring crops. 'Autumnal cultivation,' he said, 'had done great things for English agriculture. That and the use of artificial fertilizers had greatly increased the production of root crops—and the more roots, the more stock; the more stock, the more manure; and the more manure, the more grain.'"

"And yet," said I, "there is not half the necessity for autumnal cultivation in England, as there is here. Our autumns are longer, and drier, than in England, and the land in better condition to work. And our springs are later and shorter, and if we get only a few days behind with our work, a drouth sets in, and we lose half our crop."

On sod land, if the soil is tolerably clean, and rather light, it may be better, for corn, late potatoes, beans, and fodder-corn, not to plow the land until the spring. There are days, after heavy rain, when we can not get on to the plowed land, but when we can plow on sod, and by so doing we lose no time. Some good farmers, however, prefer not to plow until just before they are ready for planting. Be this as it may, there is no special hurry in getting the land plowed for corn, potatoes, etc. But for spring wheat, oats, barley, early potatoes, and mangel wurzel, the rule should be, to plow as much as possible in the fall, as any delay in the spring may make a serious difference in the yield.

The two most satisfactory crops on my farm this year have been corn-fodder and late planted potatoes. I had a piece of one-year-old clover that I pastured until the middle of June. There were more weeds in the lot than clover plants, and I was heartily ashamed of the field. But I was short of pasture, and could not spare it until the middle of June. We then plowed this field. It was dry and hard, and needed a strong three-horse plow with a strong point, to do the work. But I have always thought that, if you *can* break up land during a drouth, and can pulverize it, one such plowing is worth two plowings, when the ground is moist enough to work easily. After plowing we rolled the field, and followed with a heavy pair of three-horse harrows, and then rolled the rougher parts again, and following with a harrow, until the field was reduced to powder. We then (June 15) drilled in half the piece with about three bushels of corn per acre for fodder, in rows 35 inches apart, and the other half was planted with Late Rose potatoes. The corn-fodder was cultivated two or three times, and though sown so late, it grew rapidly, and by the middle of August it completely covered the ground. The stalks were fine and sweet, and we had at least a ton and a half of cured fodder, worth as much as the best hay. The potatoes were equally satisfactory. There was a good, fair crop, and the land in both cases was clean and mellow.

Another crop, which has turned out so well that I propose hereafter to plant it largely, is cabbage. It has this advantage over mangel-wurzels. If there should be a good demand for cabbages in market, you can sell at a price that brings in a large return, per acre, while if there is no demand, you can find greedy customers at home. The cows, sheep, and pigs will be grateful for all you have to spare.

"Your best crop this year," said the Deacon, who has just come in, "and the only one that affords any real profit, is your apple crop. Your corn is all fed out on the farm; so is the corn-fodder and mangel-wurzels and hay. You have ten acres of potatoes, but they are cheap. You had 33 acres of barley, but that will bring but little."

"If so, Deacon," I said, "it cost comparatively little. There is no crop on the farm that requires so little labor as barley. It requires rich, dry land, and brings a relatively high price. And this for the simple reason that good four-rowed barley can only be grown on the best of land. I sowed wheat after the barley, and the two crops afford a fair profit."

"But look," said the Deacon, "at the labor and manure you expended on the land last year, and the year before, for mangels."

"True, Deacon," said I, "but the mangels do not use up all the manure. Last year, after the mangels, I had 136 bushels of Early Vermont potatoes, per acre, and sold them for $1.25 to $1.50 per bushel, and the barley, this year, after the potatoes, was about as good a crop as is often grown. And so, even admitting that the mangels themselves do not bring in any money, and that they require considerable labor and manure, their general effect on the farm is good—and, in short, they *pay*.

And corn-fodder will pay and cabbages will pay. They enable us to keep more stock and to make more manure. It looks now as though we should get a good price for our grain another season, and I think we shall do well to sow and plant largely. At the same time the prospects for the stock raiser are no less encouraging. The fact that we can ship fresh beef, and mutton, and pork, and poultry to Europe, will have a great influence on our system of farming. It will give us a steadier market for live stock, and better prices for improved stock. We shall be able to feed better, and to raise better feed we must farm better and manure more. It looks now as though for the remainder of this century, America is destined to be the great *meat producing* country of the world. And in talking about farm crops this fact must be borne in mind. We shall use, especially in the Eastern, Middle, and Southern States, a large amount of artificial manures, and they will be used more and more for growing crops to be fed out on the farm. The supply of good beef and good mutton, will come from the cultivated and well farmed sections of the country. The meat eating people of the world are increasing with marvelous rapidity, and they will not be fed on game or semi-wild animals that have to use the food they eat in summer to store up fat to keep them alive in winter. It requires an enormous amount of grass to produce a five-year-old buffalo, and not much less to produce a thousand-pound Texan steer. We must have improved animals, and improved modes of feeding. We must supply our animals with abundance of nutritious and easi-

ly digested food, winter and summer, and this can only be done in the cultivated sections of the country, and by improved methods of farming. Let us be encouraged to push forward the good work with vigor. Let us underdrain, let us kill weeds, let us manure, and let us raise larger crops, and feed out a greater proportion on the farm. This is to be the improved American agriculture of the future. We could hope for no better prospect.

The details of the system will depend on circumstances, and may well be left to the intelligence of our thinking, working farmers. All that is needed is a conviction that improved farming will pay—and I think we need have no doubt on that point.

Hints and Helps for Farmers.

FASTENING FOR SWINGING DOORS.—L. M. St. John, Canajoharie, N. Y., sends the sketch of a fastening for a swinging barn-door, shown at fig. 1. The center-bar is made of a piece of hard wood, 1¼ inch thick, and 3 inches wide at the ends, tapering gradually from the ends to the central part of the door. They are made to slip loosely through iron staples on each batten of the door, and are joined together by halving the ends, and putting a bolt through them, and also through the narrow end of the guide which lies beneath them. The latter is fastened to the door, as shown in the engraving, by a rivet or screw which permits it to play back and forth. When the central points of the bars and the guide are pushed to the right or left, the ends of the bars are made to project beyond the door, and engage with the straps or mortises made to receive them. The bars are then firmly held in place by the guide, as shown by the dotted lines. The advantages of this fastening are that it is always in place; is easily opened and shut, and when frozen fast at the bottom, the power of the toggle-joint easily loosens and draws the end. The door is also fastened at the strongest place, and cannot spring open; the bar will hold without slipping, although the mortises should become worn, and although it should be but slightly caught, because the guide holds it rigidly. The ends, too, are entirely out of the way when the door is opened, and if it should blow to, they will not drop of themselves.

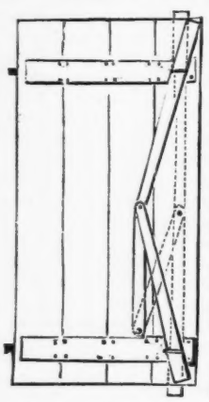


Fig. 1.—FASTENING.

Fig. 2.—PIG-TROUGH.

AN IRON PIG-TROUGH.—In looking over a catalogue of the New York Plow Company, we find an iron pig-trough mentioned. Having some time ago used similar iron troughs, we found them very durable, and very cleanly, and far preferable to wooden ones of any kind. The trough referred to is shown at figure 2, and can be procured at a cheap enough rate to make them generally used.

Fig. 3.—WAGON-JACK—DOWN.

Fig. 4.—WAGON-JACK—RAISED.

AN IMPROVED WAGON-JACK.—A reader of the *American Agriculturist* sends a drawing of a wagon-jack, which speaks for itself. It is shown at figure 3, as down, and at fig. 4 as raised. As seen by its structure, the weight is thrown over the center of the pin, or pivot, so that the jack can not come back, and no fastening for the handle is necessary.

A Case for Carrying or Keeping Eggs.

Eggs are the most fragile of things, and to be carried or even stored safely, they need to be packed in the most careful manner. Many devices have been used for this purpose, but although some of them have been found available for business purposes, none of them have been adapted to domestic uses for the storage of eggs. A "Safety Egg-carrier," devised and patented by A. R. Sprout, of Lycoming Co., Pa., here illustrated, seems to meet both of these requirements in the most effective manner. Figure 1 shows the box, with the trays, of which it contains eight, and holds altogether 36 dozen eggs. The eggs are held in place by means of pins inserted in the bottom of each tray, and forming a circular supporting wall around each egg, as shown at figure 2. Some soft material is wound around each pin, forming an elastic padding by which the eggs are held firmly and securely. The trays, when filled, are placed in the package, one above the other, the bottom of one forming the cover of the one below it; the lid of the box holds all tightly in place. Small holes are bored through the bottom of each tray, the small end of each egg rests, and is thus held in the position, which is the best for long and safe keeping. Each tray of eggs may be inspected at any time, by holding it to the light to determine their soundness. For household use, each tray forms an independent receptacle for eggs; the package or box being provided only for the purpose of the shipper or dealer.

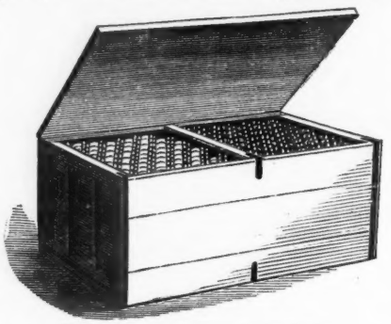


Fig. 1.—EGG CARRIER COMPLETE.

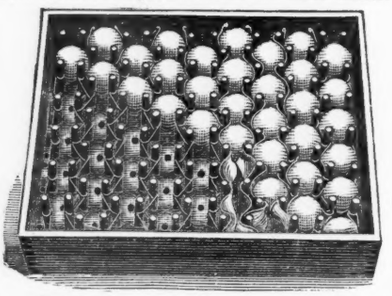


Fig. 2.—SINGLE TRAY OF EGG CARRIER.

Stove for a Poultry-House.

A simple and safe method of warming a poultry-house in winter, is as follows. With a few bricks and common mortar, build up a wall in the shape of an oblong rectangle, twice as long as it is wide, leaving an open space in the front about a foot wide and the same in hight. Lay upon this wall, when 18 inches high, so as to cover the space within the wall except about 6 inches at the further end, a piece of sheet-iron. Build up the wall over the iron another foot, and then build in another sheet of iron, covering the space enclosed all but a few inches at the front. Then turn an arch over the top, and leave a hole at the end for a stove-pipe.

Fig. 1.—STOVE.

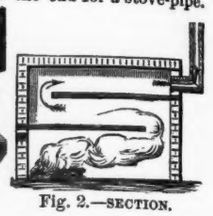


Fig. 2.—SECTION.

The stove thus made will appear as at figure 1, and a section of it as at figure 2. A small fire made in the bottom at the front, will then heat this stove very moderately, the heat passing back and forth, as shown by the arrows, will warm the whole just sufficient to make the fowls comfortable, and there will be no danger of injury to their feet by flying up upon the top, as it will never be hot if a moderate fine only is kept. The stove will be perfectly safe, and may be closed by a few loose bricks laid up in front, through which sufficient air will pass to keep the fire burning slowly. Ordinarily a fire need only be made at night during the coldest weather.

How to Build a Boat-house.

Having in former numbers described different kinds of boats, we now comply with several requests and describe a house in which to safely keep a boat. Any kind of a house that is large enough may be used, if provided with the needed fittings named below. Where the level of the water is liable to little change, the house need not be raised much above the surface of the water, but the floor may be make so low that one can easily step out of the boat to the floor. Of course there should be a channel made in the center of the house, deep enough to float the boat when loaded. The plan of the floor is shown at figure 1, with the boat in the center. The floor should be protected by a light railing around it, (see fig. 2), to prevent accidents from slipping when the floor is wet. Where the water level changes, the house should be raised on posts, or bents, as may be necessary to keep it above high water. A hanging ladder, that may be drawn up, is provided for use at low water.

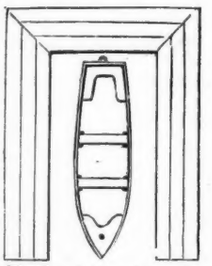


Fig. 1.—PLAN OF HOUSE.

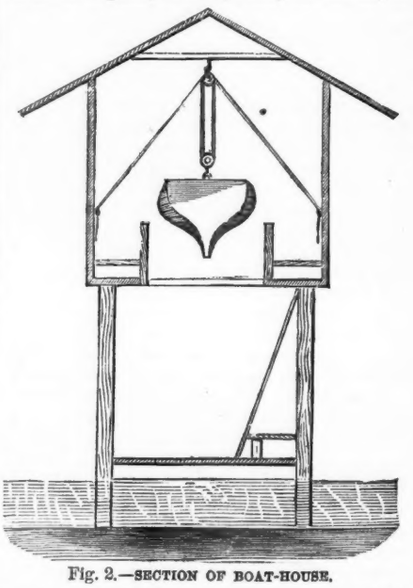


Fig. 2.—SECTION OF BOAT-HOUSE.

The ladder rests at the bottom against a small foot-stage. At figure 2 the house is shown in section, with the boat drawn up and hanging. The boat is raised by means of ropes and tackles, one for each end; and as the boat is hoisted up, the ends of the rope are fastened to ring-bolts or cleats on the wall. It is easy to raise a boat in this manner by hoisting one end a few feet, and then the other end, making fast each time, until the boat is high enough.

An Ice-house in the Barn.

Many farmers fail to put up ice because they think an ice-house to be too costly for them. We here give a hint which we received from a neighboring farmer, some years ago, as to putting up ice in a corner of the barn, without anything more than a few boards and some sawdust. The coolest corner of the barn is set apart for the ice, and a board is nailed to the floor on each side of the corner, or across it, one of these should be just beneath a beam of the upper floor. Some rough boards are tacked to the posts of the barn wall, up to near the top. A batten is then nailed to the floor, one inch from the board; this makes the foundation of which the ground plan is as shown at figure 1. If necessary, a board is nailed up to the beams above, for the purpose soon to be described. The spaces, *a*, *a*, are filled with sawdust. The ice is then packed in the space, bounded by the dotted lines, placing a foot of sawdust beneath it, and as it is put in, sawdust is packed around it. The sawdust is kept in at the sides, *b* and *c*, by upright boards placed against those nailed to the floor and a beam above it, or the board nailed to the beams before mentioned. These boards are thus kept in their place. When all the ice is in, it is well covered on the top, a space for a door being left in the boarding above the ice. Then a second row of boards is placed between the boards on the floor and the battens, and fastened as may be convenient, a door space being made to match the inner one. The space between these boards may be filled with cut straw, sawdust, clover-chaff, or any other non-conducting material, up to the hight of the ice within. There is no need to close the door space; it will be better to leave that open for ventilation. Figure 2 shows the out-

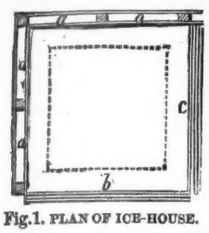


Fig. 1. PLAN OF ICE-HOUSE.

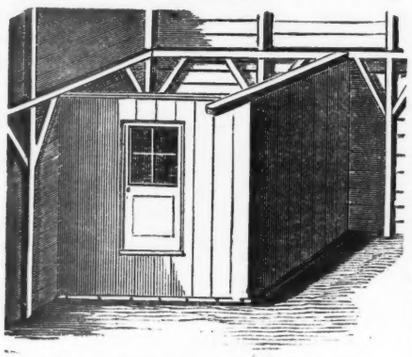


Fig. 2.—VIEW OF ICE-HOUSE IN BARN.

side of this ice-room as it appears from the barn floor. Such a place as this may be easily arranged in many barns; our neighbor thus kept an ample supply of ice every season without losing by waste more than is usual in the best built ice-houses.

Growing the White Birch on poor Land.

As an instance of the profitable culture of poor lands, the business of growing white birch for the manufacture of thread spools, may be given. Birch timber is cut for this purpose when young, so that a plantation sometimes may not require more than four or five years to become profitable. Steep hillsides, cold bleak mountain lands, or sandy valleys, will produce this timber. It is stated that the business of exporting white birch timber from an Eastern State to Great Britain for this manufacture, has already begun. If there is a demand for it, we can supply all that is needed. But the strangest thing is, that we should ship abroad from New England a bulky raw material like this, instead of the finished article, upon which the difference in freight only would give a good margin for profit. There are thousands of picturesque valleys in New England, and elsewhere, upon the sides of which millions of birch trees may be grown, and down whose centers flow rapid streams that would furnish power to drive the saws and lathes required to manufacture the trees into spools. It will not be many years before this will be added to the many other American industries, and we may supply the world not only with thread spools, but with bobbins for spinning frames, and other kinds as well.

Plan of a Dairy Barn.

A cow barn that can be easily extended as the herd may be enlarged, will be found very convenient

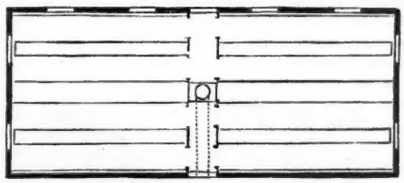


Fig. 1.—PLAN OF DAIRY BARN.

by many. The size of a herd is frequently restricted by the accommodations afforded by the barn, and when an increase might otherwise be desirable, it is found objectionable on this account. It is not always possible to pull down one's barns to build larger, but when it is possible to add to them at either end, increased room can be gained with but little outlay. We herewith illustrate a dairy barn that can be extended to any desirable limits without changing the plan. In these days of steam, and all sorts of machinery, there is no difficulty in using long narrow buildings, for, with the hay-fork and the hay-carrier, the forage can easily be stored in the longest barn and dropped wherever it is desired, without trouble, and by using a tram-road and light feed-cars, 300 cows can be fed from a central feed-room as easy as 30 can be fed in the old-fashioned manner. Figure 1 is the plan of a cow barn that will be found as convenient for a small herd of 20 or 30 cows, as for one of ten times that number. The building may be 24 or 42 feet wide. The plan shown is 42 feet in width, and accommodates two double rows of cows. If room for only one double row is desired, 24 feet will be amply wide. In the plan, there is a central passage for feeding, 6 feet wide, with a tram road-way laid down in it. On each side of this, are the double rows of stalls, with a feed-trough for each. The floors on which the cows stand are 7 feet wide, which gives room for a gutter behind each row, and for a four foot wide feed-trough, divided lengthwise into two, each part being two feet wide, by a sufficiently high partition. The feed is easily thrown into these troughs from the central passage, along which the feed-car can be drawn by a small horse, or be pushed by a man. A turn-table is provided in the center of the passage, to admit of a car being brought from the wash-house in the rear with empty milk-cans, or to the milk-house with the full ones after milking. The door-ways are made very capacious, and the doors are double; the door-ways may be left open during the summer, the doors being fastened back against the wall. The upper floor is kept for hay, fodder, and feed; these being ranged at each end, leaving the center open and free for cutting and mixing the feed. Here should be a fodder-cutter and a large mixing box, in the side of which should be a spout to carry

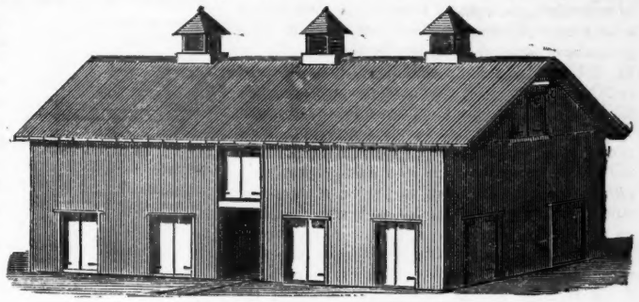


Fig. 2.—VIEW OF DAIRY BARN.

the feed to the car on the floor below. If the food is steamed, the boiler can be kept in a rear building, not shown on the plan, the steam being carried to an engine, which would work the fodder-cutter, and the steamer, both on the upper floor. This would be preferable to having the boiler in the main building, and would avoid much risk from fire. At figure 2 is shown the elevation of the building. The central door above is for the admission of feed to the bins; a door is provided at each end for unloading fodder, a hay-fork and a hay-carrier being used for the unloading. There should be ample ventilation provided by means of shafts, as shown, and these can also be utilized for dropping hay to the floor beneath. The plan here given will admit of much modification; it is thus broadly outlined to meet the wishes of many correspondents who desire this information. It is hardly possible for one plan to meet all cases; but this will be found sufficiently suggestive and clear, we hope, to satisfy those who wish for a similar plan. When an extension is desired, it is only necessary to add a bent or two at each end, carry out the roof and floor, and remove the ends.

A Dairy Ice-House.

The rapidly extending use of the cold system of setting milk, heretofore described, will create a

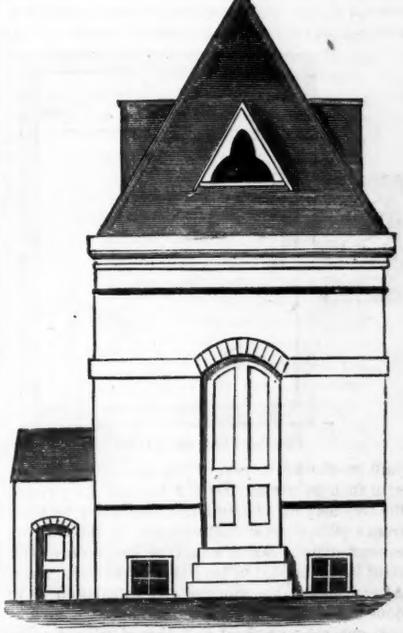


Fig. 1. FRONT ELEVATION OF DAIRY AND ICE-HOUSE.

necessity for convenient and compact dairy rooms, with well and ice-chamber for use in the summer

time. A combined dairy and ice-house, which the writer is now laying out, in which the Cooley creamery is used, is arranged as follows. Fortunately the water-supply is provided by a never-failing well, which flows over the top, and from which a steady stream, filling a two-inch pipe, flows away. The dairy is partly underground, for the purpose of maintaining an equable temperature, and for the convenience of using the flow from the well. The part above ground is shown in the elevation, at figure 1, and the ground plan at figure 2. It is of red Croton brick, with a band course and arch over the door of yellow brick, and two band courses of black brick, as indicated in the engraving. This peculiar style is adopted to match a brick-house near by, but common brick would answer ordinary purposes, or the building might be of wood or stone. This upper part is the ice-house. A porch on the north side covers steps to the milk room below, which is lighted by two windows on the west side. The plan of the milk room is shown at figure 3. It is large enough to contain several of the creameries; the feeding-pipe, which conveys water to these, is shown at *a*, *a*, and the outlet to the drain for the overflow is seen at *b*. The floor and sides of the dairy are of concrete, covered with cement, and a drain beneath the floor keeps the building dry. If ice should at any time be needed to produce a very low temperature, it will be brought from the ice-room above, but with a stream of water at 45 degrees, ice may be dispensed with.

In cases where there is no ample supply of cold

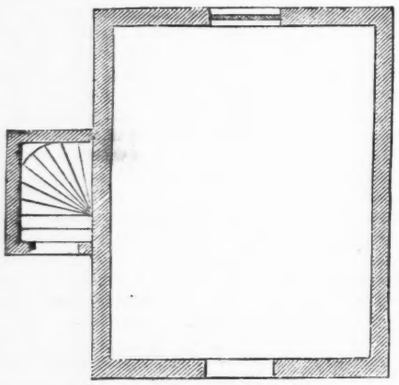


Fig. 2.—PLAN OF ICE-HOUSE.

water naturally flowing, it would be necessary to employ a windmill. But there are many localities, where a steady stream may be procured by digging a deep drain on sloping ground, to supply a dairy

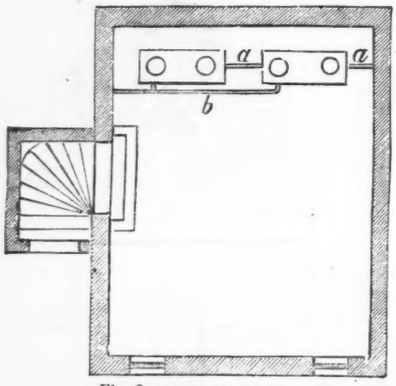


Fig. 3.—PLAN OF DAIRY.

built on the lower part of the slope. Otherwise, with such an arrangement of ice and dairy room, the creamery may be supplied with water by hand from a pump, and cooled with ice. In this way the consumption of water would be small, only sufficient being needed to keep that in the tank fresh. After considerable thought and calculation, as to floor of the ice-house, it was found that a floor of oak, covered with sheet-zinc, turned up a foot on the walls, and the walls covered with hydraulic cement, would be the cheapest and most durable; a leaden trapped pipe from the zinc-floor, drains the drip from the melting of the ice into the creamery.

Storing Sweet Potatoes.

Sweet potatoes are difficult to store in large bulk, unless careful precautions are used. They must

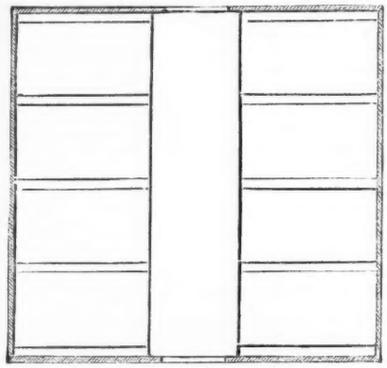


Fig. 1.—PLAN OF SWEET POTATO HOUSE.

not be exposed to a temperature lower than 60 degrees; and as they must be kept dry and well ventilated, must not be piled in large quantities. The most convenient place to store them is a house so arranged, that they can be guarded against accidents of temperature, and be always accessible. A plan of such a house is shown in figure 1, and the elevation in figure 2. It may be made of any convenient form or size, but a square is most economical of space. For the Southern States, where fire-heat is not needed to keep up the proper temperature, a one-story building will do; but in the north, it should be of two stories, with perfect ventilation, the upper floor made of slats, placed an inch apart, upon which the roots are to be stored, and a stove should be provided below. The lower room may be used as a store-house, a tool-house, or a work-room. The upper floor, if of two stories, or the main floor, if but one, should be arranged as follows: a passage-way, running through the building, has a door at each end, to be opened when desirable, to air the house. The floor on each side of the passage is divided into bins by slatted partitions; these are double, as shown in figure 1, to give thorough ventilation, by keeping the potatoes in masses of not over 60 to 100 bushels in each bin, with air-spaces all around them. The same precaution as to air-spaces, is observed with the end partitions, by keeping the slatted sides of the bins one inch from the walls. The lower parts of the walls of the one-story house are also slatted, as shown in figure 2, but doors are provided to cover these, which may be made to either slide up or raise up on hinges, as seen in the engraving. The hinged doors are preferable, because they may be opened an inch or two only, and yet ventilate the whole of the bin of potatoes. These doors are not needed in the two-story house, because ample ventilation is provided by means of the double and slatted partitions and the slatted floor. To keep out mice, the house should either be raised on posts, or wire-netting should be fastened around the base of it.

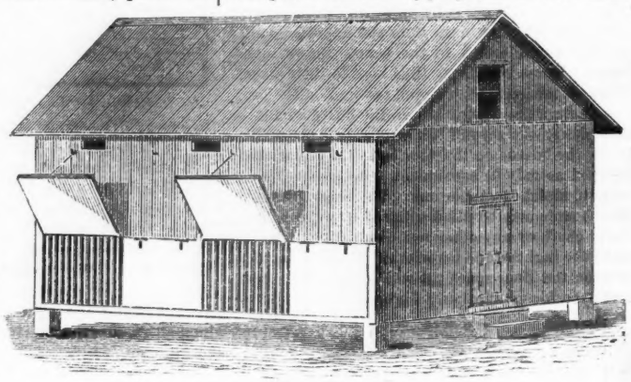


Fig. 2.—VIEW OF HOUSE FOR SWEET POTATOES.

The Trade in Skimmed Milk.

Milk is a thing that, to a great extent, is to be taken on trust. A large proportion of those who consume the milk that is sold in cities, have no knowledge of what pure milk is. There are those who have been brought up in cities, to whom the cow and the milk-pail are only traditions. They procure a white or bluish fluid, as the case may be, and take it for granted that it is *milk*. That skimmed milk is ever sold by farmers, is a fact of which few are aware, and yet, every one in the cities who uses milk is doubtful if what he buys is the pure article. As a rule, we are assured that whatever adulteration there may be in the milk business, is practised in the cities, and after the milk has left the farmer's hands. As a rule, too, we believe that the milk-farmers feed only wholesome and good food. This they cannot help doing, because it is out of their power to obtain anything else. Distillery slop, and garbage, are city products, and are not sufficiently portable to be carried far into the country. Corn-meal, brewers' grains, green fodder, hay, and pasture, furnish the food from which country milk is made. All these are healthful, nutritious, and entirely unobjectionable. The very best milk that is brought into the great cities, is made from these foods, and, as a rule, we are sure that the greatest cleanliness and care are observed by the milk-farmers in the management of their product. The practice of the milk-farmers, who ship pure milk to the cities, is beyond reproach, and the wholesale denunciations heaped upon them, as a class, are undeserved. But there are different classes of consumers to be supplied with milk; the poor, who cannot afford to buy pure milk, and are contented with wholesome skimmed milk; those who are better off, and purchase good milk; and a select class, who will have only milk of extra quality for the use of babes and young children. By dealing with well-known parties in the trade, the last mentioned class get the best milk to be obtained, and in the best possible condition. The greater number of consumers, get what is known as "half skim"; but for this they must blame the retailers, and not the farmers who send the milk. The poorer class of city people, in all cases unfortunately the least able to defend themselves, take the refuse of the market. Much of this is wholesome skimmed milk, of which very large quantities are sent to market since the establishment of creameries, where butter only is made. Some of it is grossly watered stuff, no doubt, but this sort of adulteration has been clearly shown to be the work of dishonest retailers in the cities. The trade in skimmed milk is a perfectly legitimate one, and can not properly be objected to. It is a convenience to the farmer, who finds a market for what would otherwise be a waste product, and also for the poor farmers, who get the worth of their money in such wholesome milk as they can afford to purchase.

A large amount of choice butter comes to the New York market from the Orange Co. (N. Y.) creameries, and, as might be expected, it is from this locality that the city is supplied with a large quantity, in fact, nearly the whole, of its skimmed milk. More than 43,000 gallons, daily, or over 15 million gallons yearly, of skimmed milk is shipped by Orange Co. farmers to New York, by two railroads, the Erie and the N. J. Midland. This large trade has helped to give a bad reputation to the Orange County farmers amongst thoughtless persons, who jump at the conclusion that the traffic is objectionable and immoral, and they consequently

deprecate it vigorously. As we have shown, this view of it is unwarranted, and if by any local ordinances of the city, the business should be interfered with, it would be a serious disadvantage to the Orange County farmers, and to the poor citizens of New York as well, who would then be deprived of a cheap but wholesome milk, and be obliged to procure their supply from the suppressed swill dairies, which would soon appear again when the demand for cheap milk should arise. Pure skimmed milk is infinitely better than the diseased and poisonous product of these swill dairies, and the trade in wholesome skim milk, provided the article is sold on its own merits, and for exactly what it is, is one to be encouraged, rather than one to be denounced.

Feeding Large or Small Animals.

Abundant experience, if such proof were necessary, shows that there is more profit in feeding the larger breeds, than there is with the smaller breeds of animals, whether for meat or milk. Of course, there are exceptions in this, as in all general rules; the small Jersey cow, for example, which is expected to produce an exceptional product of highly colored and finely flavored butter; but this does not affect the rule above stated. It is only necessary to consider that, when we feed two animals of 700 lbs. each, we have to supply the demands of two sets of breathing, circulating and muscular apparatus, which are considerably more extensive and expensive than those of one animal of 1,400 lbs. This is true of every animal that we feed, from the fowl and pig, up to the cow and fatted steer. Ten small Merino sheep, weighing 80 pounds each, will cost much more to feed than four Cotswolds of 200 lbs. each, or five of 160 lbs. each. Besides the gain in feed, we have also a large advantage in the less proportionate amount of offal in the fewer large animals than in the larger number of small ones. Where flesh and milk are the objects in view, this consideration ought to have great weight in the selection of stock to be kept. The choice, of course, will be restricted by the opportunities for keeping the stock, for it will not pay to keep Shorthorn cows upon a pasture where only small active cattle can pick up a living; but, where other things are equal, this consideration should be well weighed. Just now, there is opening up a large opportunity for feeding stock for beef, which many farmers will very soon find a desirable one to seize upon. In choosing animals for feeding, then, they will find it to their profit to select such large breeds as the Shorthorn, or Hereford, where their locality admits of it; and where it does not, they will certainly labor under the disadvantage of preparing for market an article which can neither sell for the highest price, nor can be produced at the lowest cost. Further, there is another advantage in marketing the largest amount of product in one package, so to speak, for animals of 1,500 to 1,600 lbs. can be sent to market at less proportional cost than the same weight in the form of animals that are one-half or one-third smaller.

The Bronze Turkey.

All things considered we place the bronze turkey at the head of all the breeds of this domesticated bird. The white, buff, black, slate, and other varieties, all come from the wild turkey of our woods and prairies, which still exists in considerable numbers in the newer States and Territories. Occasional specimens of the wild bird, generally old gobblers, are captured, which equal the heaviest weights of the farm-yard, but the average of the wild birds is much lighter than the average of a well-bred farm flock. The bronze breed is the smallest departure from the wild bird in respect to color, and a decided improvement upon it, both in color and size. Nothing can exceed the brilliant plumage of a bronze cock-turkey, in his second or third year, and the females are hardly less attractive. The dirty snuff-color, which marks the wild birds, is entirely bred out of them. This lustre of the plumage, assimilating to that or burnished gold in the sunlight, has made the bronze variety a great favorite with all admirers of fine poultry. About every thing known to the arts of the breeder has been done for the bronze turkey to bring the stock to its highest perfection. They are the Shorthorns of the poultry yard. They have been bred especially for size for a long time, and when we select stock from a flock of thorough-bred birds, we have certain qualities fixed in them, which are reproduced in their offspring. They are uniformly beautiful in plumage, and heavier than birds raised from the common stock. The increased cost of the breeding stock is paid for in the larger average weight of the turkeys slaughtered for the markets at Thanksgiving and Christmas. The standard weights for adult birds of the bronze variety, fixed by the "American Poultry Association," are, for males, twenty-five pounds; for females sixteen pounds; but these weights, in well-bred flocks, are often reached in the first year, and adult pairs of 45 to 50 lbs. are not uncommon, and 60 to 65 lbs. are sometimes, though rarely, reached. It pays to breed, invariably, from the best stock.

STANDING WATER.—Water is life-giving so long as it is in motion, its presence is fatal to vegetation when it is stagnant. Provision for the rapid removal of water that may come upon the fields, should not be neglected before the ground freezes, or is covered with snow. This is peremptory for growing crops, and advisable for stubble land, for water left to percolate slowly through the soil, will dissolve out from it, and carry off, much soluble fertilizing matter; all the nitrates, which are so valuable, being the first matter that is thus lost.

Leaks in the Barn.

Here and there may be seen stables and barns with broken windows, loose boards, holes in the roofs, or doors and windows that gape open, and refuse to shut closely. Through these openings the cold air and rain will leak in, and the warm air will leak out. Such leaks as these are disagreeable to see, and are uncomfortable to the occupants of the buildings. But these are by no means the whole of the affair. The worst of it is, that through these leaks the farmer's profits disappear, very silently, it is true, but not the less steadily and constantly. While his cattle stand and shiver in the cool, sharp nights, or steam under the penetrating rain-storms or snow, with every shiver there disappears a quantity of the fodder from the barn, as well as some of the milk from the cows, some fat from the steers and the pigs, some wool from the sheep, and some eggs from the poultry. The farmer looks and wonders. He complains that the cows are rough, that "there is no good in the feed"; that the pigs do not fatten as fast as they should, that there are no eggs, and the hens are eating their heads off. Well, an animal can not use up all its food in keeping warm, and at the same time make milk, fat, wool, or eggs. These are made from food, and from only the *surplus* of the food, after the bodily wants and needs are supplied. In the Polar regions, a man needs six pounds of fat meat, and the same of bread, for his daily meals, while an East Indian needs but a pound of rice for a day's subsistence. When working in the northern woods in the depths of winter, with the thermometer far below zero for weeks at a time, the lumberer eats with relish huge lumps of clear fat pork, with his daily two pounds of bread and liberal messes of bean soup; food of this kind would sicken a man, were he to look at it in the harvest field. All this food goes to make up the waste of heat from the body during the excessive cold. It is precisely so in the barn, or in the pig-pen. If these are kept so warm that water will never freeze in them, much less food is needed by the animals than if the air is far below a freezing temperature; and if the temperature is comfortably warm, less food still will be required. So wherever a stream of cold air, snow, or rain, pours in upon the cattle, or when they are miserable and uncomfortable, a stream of wasted food pours out all the time through the leak. Now is the time to stop these leaks. A board here and there; a good glazed window in place of a broken shutter; warm, dry litter in place of a foul wet bed; a tight roof and a plastered or double-boarded ceiling, all these are actually worth more than an extra portion of food to an animal, because, although when cold and chilled it eats the more, yet it thrives poorly; while if well housed, it will keep sleek and thrifty upon comparatively moderate feeding.

THE LANGSHAN FOWL.—Some time ago we introduced to the notice of our readers the Langshan, a variety of fowl that had been recently imported into England from a part of the Chinese Empire. Since then, further experience with these fowls has given them a favorable reputation, and we see it noticed in the English papers that they are proving to be very early layers, and excellent table fowls. A correspondent of the "London Live Stock Journal" reports, that he has had eggs from pullets only 4½ months old, which is remarkable, even with the most precocious specimens of the breeds noted for early laying. An importation of these fowls has been made by Mr. Edward A. Samuels, of Waltham, Mass., and if the reputation they have made in England, is maintained in this country, we expect them to become very popular.

CROSS-BRED SHEEP.—At the New York State Fair there were exhibited some sheep bred from common Merino ewes and a Cotswold ram. The fleeces of the first cross measured five inches in length, and the wool was as fine as the Merino, and as easily combed as that of a Cotswold. The wool of the second cross, as long as that of the pure Cotswold, was still as fine as Merino wool. The carcass of the cross-bred sheep makes excellent mutton, and is nearly as heavy as the pure Cotswold. We have frequently alluded to the advantage of this cross, and the interesting example shown at Rochester, proves how useful and profitable a farmer's sheep it would be. The farmer's sheep is undoubtedly the cross-bred.

The Arrangement of the Stack Yard.

It is unnecessary to provide costly barns for the storage of crops. This is an avoidable expense that is a burden upon many farmers. For the shelter of cattle, light, comparatively low and cheap buildings only, are needed. In reality, the costly, heavy timbered barns may be easily dispensed with, and in many cases the basements beneath them are extremely unhealthful for the animals kept in them. If crops of hay and grain can be stored in stacks in the damp, rainy climates of European countries, they can easily be so kept here. As an instance of how this may be done, we give an illustration of the stack-yard of a well known farm. These stacks are chiefly grain, some being hay, and some thrashed straw. In making stacks it is advisable to adopt the shape of those here shown. What is worth doing, is worth doing well, and the contents of a badly made stack will almost certainly be damaged or spoiled. The cover of the stack may be made weather proof without the troublesome thatching sometimes used; all that is necessary to be done, is to protect the top by straw, or coarse hay, laid on regularly, each layer overlapping the lower one so as to shed rain. The cover should be fastened down with hay bands or straw ropes, or where there is not time to spin these, loose spun, cheap, tarred, hempen rope may be used instead, and will last many years if well cared for. The stack yard should be close to the stables and thrashing barn, and should be well fenced to keep out tress-passers; poultry of various kinds will be found more mischievous in this respect than large animals.

Fig. 2.—FRAME FOR STACK.

To keep out vermin, there should be properly con-

structed stack-bottoms. These may be made with brick pillars, one being in the center, and others ranged around it either in a circle or square, as may be desired. Floor joists may be laid upon the pillars, as shown at figure 2 (p. 427), and connected near the ends, which project two feet over the pillars, by cross pieces, as there shown. A tight plank floor may be laid upon the joists, and as this projects at least two feet out from the posts, rats or mice can easily be kept out of the stacks; besides, as the floor is raised from the ground at least 18 or 20 inches, these destructive vermin find no hiding places underneath the stack,

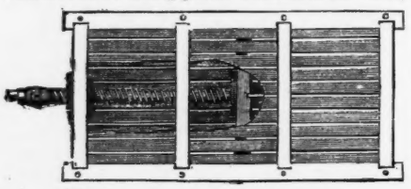


Fig. 3.—FRAME FOR A HAY PRESS.

and soon leave for more comfortable quarters, or are destroyed by cats, dogs, owls, and hawks.

Pressing Hay and Hay Presses.

There is a rapid increase in the demand for hay as an article of merchandise to be shipped to distant places. So bulky a material as this, is not readily portable, unless it is very closely compressed into bales. The more closely the hay may be compressed, the more extensive will be the market for it, and the greater the distance to which it can be profitably carried. If ten tons of hay can be pressed so closely that it can be carried in an ordinary freight-car, it is clear that it can be carried twice as far for the same money, as if only five tons could be put into the car; because light, bulky articles are charged for the room they occupy, and not according to their weight. The more effective the method of compressing hay, the greater its value to the grower of it, and it is to the farmer's interest to procure the best obtainable presses. A large and growing business is now done in packing hay, and the extension of the trade is only limited by the quantity produced, and the cost of packing. It is now no longer held to be an axiom in farming that "all the hay and straw grown upon the farm should be fed upon the farm." When a farmer can purchase for a dollar, in the shape of artificial fertilizers, all the fertilizing elements that a ton of straw contains, and for the value of a ton of hay can procure an equivalent of greatly more valuable food, such as bran, oil-cake meal, or corn meal, it is profitable for him to sell his hay, and use the purchased substitute. Should the plan of wintering stock exclusively on meal become anything like general among farmers, a still larger quantity of hay would be thrown upon the market, and must necessarily be baled for shipment. The use of hay presses, in view of all these circumstances, would seem therefore to be capable of great extension, and it is well that every producer of hay should be informed about these useful machines. We here describe two hay presses, either of which is very convenient and effective in use. The press shown at fig. 1, is "The Perpetual Hay Press," made by P. K. Dederick Company, of Albany, N. Y., and is one of the several kinds manufactured by them. This machine is shown as operated by a common lever horse-power, but any other power, either of horses or steam, can be applied to it. As the name, "perpetual press," indicates, the pressing is continuous, and it need not be stopped to remove the bales, as they are made. The hay is pressed into small bundles of 10 to 25 pounds each, and the bale is made up of several of these. Bales of 100 or more pounds can be made, but the convenience of light bales is such, as to make them most desirable. These presses are made of two sizes, and will so press the hay, as to allow 8 to 10 tons to be packed in a grain car. The "Dodge Excelsior Press," shown at figure 2, is somewhat similar to the preceding, but it makes a round bale, and ten tons of hay can so be packed, as to go into a car. It is very portable, and in this respect seems to have an advantage over some other hay presses. With two horses, six tons of hay are easily pressed in a day, and with four horses ten tons may be packed. This machine received the first premium at the New York State Fair. It can be operated by any sort of power, either by horses or by steam engine, as may be preferred.

Fig. 1.—P. K. DEDERICK & CO.'S PERPETUAL HAY-PRESS.

Fig. 2.—DODGE'S EXCELSIOR PRESS.

A machine that can be made by any mechanic from materials that may be at hand, is inquired for by correspondents located in Arizona and Colorado, hundreds of miles from railroads, and where freighting costs several cents per pound. In such places it is probable that the manufacturers of the presses here mentioned, could supply the iron work of the machines, leaving the wood-work, which is the cumbrous portion, to be made where the press is to be used. This would much reduce the cost of freight. Otherwise a frame, such as that shown at figure 3, may be made wholly of wood, and the pressure may be applied by means of an iron screw, (fig. 4,) which would be all that might be needed to be freighted. The frame should be made of stout timber, strongly mortised together, with shoulders to each mortise, to strengthen the joints and enable them to stand the strain, and the pins to fasten the mortise should be strong. The frame is lined within on the bottom and two sides with smooth strips, placed lengthwise; a door being provided on the end, as shown at figure 5, through which the bale is removed. The press is filled at the top, and the hay is trampled down as compactly as possible; loose planks are then placed lengthwise upon the hay, one end of each plank being pushed under a cross-bar of the frame, and the other ends being held down by a loose cross-bar, which fits at each end into slots in the frame timbers. The ties, of strong cord, are passed through the notches seen in the follower, and others in the falling door at the end; when the bale is pressed, the ends of the cords are tied on each side. The screw, fig. 4, is one made by Messrs. E. Whitman & Sons, of Baltimore, who make a specialty of screws of this kind for tobacco and other presses; but any of the ordinary screws, worked either with a bar, or a double-handled winch, will answer the purpose. It is a question, however, if the money can be spared for the purchase, whether it would not be better to procure one of the very useful and effective machines above described, rather than to work more slowly and less economically with any home-made press. This question must, of course, be decided according to the circumstances of each case.

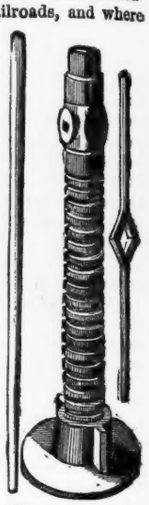


Fig. 4.—SCREW.

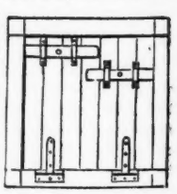
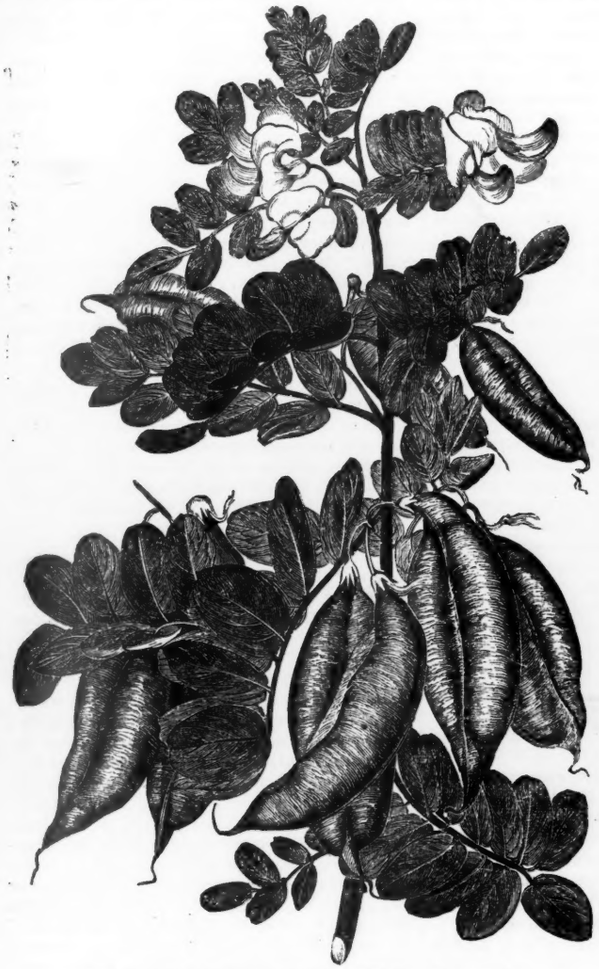


Fig. 5.—END DOOR.

Fig. 1.—VIEW OF A STACK YARD, WITH PROPERLY COVERED STACKS.

The Bladder Senna.

In speaking of the merits of trees and shrubs, we have frequently noted the autumnal colors of their foliage, and the ornamental character of their fruit, when either were conspicuous. In shrubs, especially, if the fruit is showy, we are provided with a double enjoyment, first in their flowers, and again when the fruit ripens. We are reminded of this especially by the High Bush Cranberry, (*Viburnum Opulus*), always a favorite with us when in flower; this season it set fruit very freely, and the bright red clusters were showy for some time. Another shrub that has been unusually productive this year is the Bladder Senna, (*Colutea arborescens*), a native of Europe, where it rarely grows over 10 feet in hight. Its abundant clusters of yellow pea-shaped flowers are pleasing, though not very showy; these are followed by thin pods, which attain a size out of all proportion to the seeds they contain. The pods grow rapidly, and when of full size are two to almost three inches long; they are very thin and bladdery, and being puffed up by the enclosed air, present the appearance shown in the engraving. They become of a fine crimson, and a bush loaded with them is very showy, especially when seen from a point opposite that from which the sun shines; the light strikes through the thin walls of the pod, and shows off their color to great advantage. When the pods are pressed in the hand, they explode with a crack, loud enough to make the shrub a source of much amusement to young people, who should not, however, be indulged in this harmless style of explosive, if it is desired to gather the seeds. The origin of the botanical name is not well understood, the common name was suggested by the bladdery character of the fruit, and the fact that the leaves have been used as a substitute for the medicinal senna. We very rarely mention a plant of any kind, but a number of persons write to ask where it can be bought; to save our readers this trouble, we will say that this *Colutea* is kept in the principal nurseries, and that our own plants came from the nurseries of Ellwanger & Barry, Rochester, N. Y.



THE BLADDER SENNA IN FRUIT.—(*Colutea arborescens.*)

THE WEEPING HEMLOCK SPRUCE.—(*Abies Canadensis*, var. *pendula.*)

Small Evergreens for Small Places.

Last month we called attention to several choice deciduous trees of low growth, which are much better adapted to the planting of small grounds than those which, in time, become large trees. The same applies to evergreens—and we use the term evergreen in its popular application to coniferous trees. Of course the time for planting all trees has gone by with those in northern localities; but now, as the days get shorter, and the evenings longer, is the proper time to discuss these matters, and to talk over the merits of the various trees, whether deciduous or evergreen. He who would properly lay out his place, be it a park or front yard, should commence the work by making a planting map and fixing upon the place of every tree and shrub, after its merits have been canvassed, he thus has the pleasure of designing, or as we may say, creating his surroundings, and when the proper season comes, he can work out his ideas with the plants themselves. It is well to recollect that mistakes in the first—planting upon paper—are much more readily rectified than in the work itself, and the chance of having to make any changes are greatly diminished by the careful preparation of the planting map. Assuming that a place, however small, will have a share of evergreen trees, we would say that it is just as necessary with these, as with deciduous trees, to select those that are suited to the situation. Evergreens, even those that ultimately reach the hight of first-class trees, look so neat and compact in the nursery, that the inexperienced person is apt to forget that they will not always be small, or even of moderate size, but when well established, instead of remaining garden pets, will grow up and become forest trees. The Norway Spruce, the Austrian Pine, the White Pine, not to mention others, than which nothing can be better in their places, are often planted—a dozen of them—in a space not large enough for one when it reaches full size. There is too much shade, and the view is shut out, and then must follow cutting down—which is not so bad, but more generally a *cutting up*. We can not blame one who planted trees 10 or 20 years ago, and seen them grow up with his children, if he hesitates to fell them—indeed he rarely does it, but adopts a compromise, by cutting away the lower limbs to admit light and air. For this we must blame him, as the prime beauty of the trees is gone. The worst thing possible that can happen to an evergreen, is not to cut it down altogether, but to lop off its lower branches, leaving it with no more beauty of form than that presented by a hay-stack set upon a post. But all these troubles may be avoided by the selection of evergreen trees that do not grow large, as well as those that can, by proper pruning, be kept within the necessary bounds. The pruning of evergreens, which, within the recollection of most of us, was regarded as an impossibility, will be treated of at another time; suffice it to say that many may be as freely cut and shaped as a deciduous tree. In selecting evergreens for planting, one can spend much or little money, there being abundant opportunity to indulge one's tastes in this direction; but our remarks are for those of moderate means, who

would accomplish their object without heavy outlay. Our best nurseries contain dwarf forms of many of the evergreens that ordinarily reach a very large size, besides species that are naturally of low growth, and by the study of a catalogue there is no difficulty in selecting trees appropriate to even the smallest places. Take for example that useful and popular tree, the Norway Spruce (*Abies excelsa*), it has been raised so largely from seed that a great number of forms have been produced; some of these can not be called ornamental, but are mere monsters, curious as showing how uncouth a tree can be when it tries hard, while others have a neat and compact habit that commends them for planting in small grounds. The best among these dwarf forms are Clanbrasils' Spruce (*Abies excelsa*, var. *Clanbrasiliana*); the Conical Spruce (var. *conica*); Gregory's Spruce (var. *Gregoriana*,) and the dwarf form known as *diffusa*. None of these are disposed to grow tall, and some will not reach over six feet in a lifetime. Among the pines are several that have a dwarf habit. There is a variety of our common White Pine (*Pinus Strobus*) which is in the catalogues as *pumila* and *nana*; it grows only about 8 feet high, and has shorter foliage than the ordinary form. The Scotch Pine (*Pinus sylvestris*), has produced, among several forms, a dwarf one called *pumila*. The Mugho Pine (*Pinus Mugho*), is a low-growing species, and there is a variety of it (var. *pumila* or *nana*) that is still more dwarf.

There are several dwarf Junipers and Arbor Vitæs, the names of which are given in the catalogues. The most beautiful of our native Evergreens, the Hemlocks, has produced several interesting forms; the Small-leaved Hemlock, (*Abies Canadensis*, var. *microphylla*), has very small foliage, while the Large-leaved (var. *macrophylla*), runs to the opposite extreme; there are one or two very dwarf forms, but the most beautiful of all is the Weeping Hemlock (var. *pendula*), of which an engraving is here given. This variety has its branches positively pendulous, even the leader bending over upon itself. This has been grafted upon tall stocks, but so treated it is not satisfactory, and the trees far inferior in beauty to those in which the branches start from the base. This form was discovered, if we mistake not, near Fishkill-on-the-Hudson, by Henry Winthrop Sargent, Esq., and is now in the hands of Samuel B. Parsons & Sons, at whose nursery, at Flushing, L. I., we saw some fine specimens, including that from which our engraving was taken. It is not yet known what size it will attain, but no tree bears cutting better than the Hemlock, and by judicious pruning, this may be kept at any desired hight; indeed the ordinary forms of Hemlock, Arbor Vitæ, and Norway Spruce, are all tractable in hedges, and may be converted into artificial dwarfs by pruning. In mentioning some of the striking forms of common evergreens seen at the Kissena Nurseries, we do not forget that there are many other and rarer evergreens adapted to small places, but we have referred to those likely to be popular, and within the reach of persons of moderate means.

Blundering from European Practice.

BY PETER HENDERSON.

The *American Agriculturist* possesses one advantage over most of its contemporaries, from the fact that the "man at the helm" has the necessary practical knowledge to prevent its correspondents from leading its readers into error, often times of such a grave character as to be ruinous. The other day, in looking over the columns of a contemporary journal, a correspondent—giving instructions on the cultivation of celery, advises to "sow the seed in a hot-bed about the first of April."—This is the stereotyped English practice, perfectly proper there, where the temperature during the growing season is probably ten degrees lower than with us, but if it is done here, the chances are more than equal that one-half of the crop would run to seed, especially with some varieties. There is no necessity, whatever, to do this here, even in the most Northerly States of the Union, for our temperature is high enough to grow the plants of sufficient size before the planting season in July, if sown in the open ground, any time before the first of May. We prefer to sow celery by the first or the middle of April, if the ground is sufficiently dry, but *in no case*, and under no circumstances, anywhere other than in the open field. One of the greatest hindrances to horticultural progress in the United States, is the fact that, as yet, the great majority of gardeners are from Europe; they come here brimful of importance with the knowledge they think they possess, and it takes years to convince them that the experience acquired there is not only useless, but actually disastrous in its results when applied here. Notwithstanding this, we see, again and again, our magazines quoting, without qualification, from foreign agricultural and horticultural papers, articles describing methods of culture, that must mislead the uninitiated reader. The cultivator is governed in his seed-sowing, transplanting, and other garden operations, by particular dates or seasons; but if his practice has been limited to the climate of England, with its cloudy, moist atmosphere, and low summer temperature, unless he is sensible enough to adapt himself to the changed conditions which he finds here, he will make many miserable failures.

I could name instances by the dozen, where blunders have been made, by slavishly following English rules in our American climate, blunders that have brought scores to failure when they attempted gardening here, with no other knowledge or instruction than derived from their English training. In fact, I never knew an instance where an English, Irish, or Scotchman, who began business either as a nurseryman, market gardener, or florist, immediately on his arrival in this country, that ever made a success in either pursuit. There may be some who have succeeded, but I know of none, while I have known of many who have so begun and failed.

Notes from the Pines.

Last month's "Notes" closed with some mention of the grounds of Prof. Charles S. Sargent, Brookline, Mass. It is not my purpose to give a detailed description of these interesting private grounds, but to point out a few of the striking features, especially such as offer suggestions to others. Of this kind is an example of the

Utilization of Common Things.

In one place where it is desirable to shut out the view, it is done by a plantation of various "subtropical" plants, especially the Cannas with dark-colored foliage. A wall of these purple or maroon-colored Cannas would be too sombre, and the effect of these was lightened with—what do you suppose?—common Sunflowers! But few would have the courage to try this experiment, for the Sunflower is everywhere an associate of poverty, and suggests unhung gates, leading to houses, with broken windows mended with the crowns of venerable hats. Yet here the despised Sunflowers lighted up the dark foliage like so many torches, and instead of making the rest look common, they were exalted by being in good company. While this is not regarded as one of the "show places" around Boston, the grounds being characterized by their broad landscape effects, rather than by elaborate ornamentation, it presents one example in the modern style of gardening, far superior to any I have seen elsewhere. It is what may be termed

A Mosaic Bed,

in which such formal plants as the echeverias, or cotyledons, sempervivums, and other succulents, are used for working out a design that is in itself highly pleasing, and which, regarded as a display of vegetation of peculiar forms, is really wonderful. The bed referred to is some 15 feet long, and 5 feet wide, with a gracefully flowing outline; the plants are set at three distinct elevations, and figures are worked in its surface by the use of plants of different shades of color, forms, and habit of growth. The bed in question must contain thousands of plants, which are so closely set that the soil is nowhere visible. The plants most largely used, the echeverias, or cotyledons, while they vary in tint, have yet something of sameness in their color, and this, in the example in question, is judiciously relieved by the use of the variegated *Mesembryanthemum cordifolium, alternantheras*, etc., and the effect of the whole in contrast with the surrounding carpet of grass, is very striking. I am not much in sympathy with this style of gardening, but there is nothing so takes the popular eye, and a bed of this kind will excite the admiration of those who will pass by, unnoticed, fine specimen plants that have cost years of careful culture to produce. One bed, noticed here, presents a

Novel Combination.

It is a large circular bed, thickly planted with that most beautiful late-blooming Anemone, known as "Honorine Jobert," and this surrounded by an ample margin of *Sedum spectabile*, a late species, which is known in some gardens by the incorrect name of *Sedum Fabarium*. The abundant flowers of the Anemone form a sheet of the purest white, bordered by the lively rose-color of the Sedums, and the effect is that of spring rather than autumn. This bed pleased me for several reasons: it is composed of plants that are not especially costly to purchase, and which may be propagated with great ease; they are both quite hardy, and if desired, the bed may be kept the same for several years, with but little care, and it provides for a mass of cheerful bloom, at the very end of the season when flowers are not abundant, and the few that we have are autumnal in tints....Mr. Sargent makes use of

Young Coniferous Evergreens

in a most sensible manner. Instead of dotting them here and there about the grounds while small, or consigning them to formal nursery rows, to be unseen until large enough for their final planting, they are made use of in something the manner of bedding plants, large borders being filled with them, not more closely planted than they would be in the nursery, but set in such a manner as to show the young trees most effectively. The charming golden *Retinispora plumosa aurea*, shows finely against the dark foliage of Lawson's Cypress, and the feathery character of both is brought out by contrast with such formal subjects as Podocarpus, Umbrella Pine of Japan, (*Sciadopitys*), and others. By this treatment the trees contribute greatly to the ornamentation of the grounds, and their early phases, often the most interesting, can be observed until, having become too large for the border, they are set out in their final stations.....Not far from Mr. Sargents' is the garden of Francis Parkman, Esq., known to many as the most charming narrator of early American History, and to many others as the author of a standard work on the Rose, and as the

President of the Massachusetts Horticultural Society.

I visit his garden with more pleasure, than I do most others, because it is more like my own; the plants are grown for themselves alone, and without reference to their general effect. One is always sure of seeing here some specialty. This year the Perennial Garden Phloxes are the most prominent plants, and are special favorites of mine. Mr. Parkman has for some time occupied himself with raising seedlings, and his beds, containing hundreds in full bloom, presented a gay appearance. These phloxes have in late years received the attention of several specialists, and few garden plants have shown greater improvement. The colors, selfs and various combinations, present such a variety that it would seem almost impossible to produce a new tint or marking. Indeed, Mr. Parkman is not working so much for new colors, as for a dwarfer and more compact habit, and an improvement in the form of the clusters, and the quality and substance of the individual flowers. Some of his seedlings present curious forms of foliage, and out of the many hundreds that he has raised, we have no doubt that his labor will be rewarded by finding that some of his new seedlings are of sufficient merit to be added to the already long list of choice named sorts. Mr. P. has long and patiently worked at

Hybridizing and Crossing Lilies,

and his results present features of great interest to those fond of this department of horticulture. One of his hybrids, between *Lilium auratum* and *L. spe-*

ciosum (if I mistake not), was so remarkably fine, that an English nurseryman promptly secured the stock, at what would seem to many a large figure. This lily was much and most deservedly praised in the English journals some months ago, but it was figured as *Lilium Puckmanii*, instead of under its proper name, *L. Parkmanii*.....Having heard much of the attractions of

The Forest Hill Cemetery,

I gladly accepted an invitation to visit it. While is not so rich in associations as Mount Auburn, it far exceeds it in natural beauties, and it is also much more "gardenesque." In the older portion of the cemetery, the notion of "mine and thine" has disfigured the grounds by railings and copings, but in the newer part, the repulsive boundary marks are done away with. This cemetery has the reputation of presenting the finest examples of ornamental bedding to be seen in the country. There was not so much of this kind of gardening, as I expected to see, though quite enough, nor was it in any respect superior to what may be seen in private places. The most noticable efforts of this kind were a large anchor and a cross near the entrance. They were in Ivy, bordered with some light-colored Echeveria, and the contrast of these with the well kept grass, was very effective. In one part of the grounds is a remarkable rustic structure of rocks, roots, bridges, and stairs, a very labyrinth, and of immense size. This is so recent that it is not fair to judge of it, but when in time it is furnished with suitable plants, it will be a most striking example of this style of gardening. As it is, agaves, begonias, and other exotics occupy the places which it is hoped will ultimately be filled by hardy and not less picturesque subjects. The excellence of the roads and walks, and the air of neatness that prevailed everywhere, indicate that there is some competent person in charge.

Seedling Peaches.

Every year there are brought or sent for examination a number of seedling peaches, and this year has presented no exception, as we have received perhaps a dozen, mainly from residents in the upper part of New York City, Brooklyn, and other neighboring places. These peaches are, almost without exception, borne by trees which came from seed accidently dropped or planted, and are, as a matter of course, highly esteemed by those who possess them, who look upon them with the partiality common to all who raise seedlings. Some who have these trees, ask how they can dispose of them to advantage, and others offer to supply buds to any who would like to propagate them, and it is a disappointment to them to be told that we do not consider the fruit, which they so highly esteem, as worth propagating. Indeed, of all that have been brought us the past autumn, there was but one that had any claims to be perpetuated. These trees are of course useful to those who have them, as they generally bear abundantly, and the fruit, being ripened on the tree, is better than the majority of peaches that are bought in the market. These seedlings have several characters in common; they are usually late, of very large size, coarse in flesh, and, though often quite juicy, they lack in richness and sweetness. The white seedlings sent this year, are evidently from the Old Mixon Free, and the yellow ones probably trace their parentage to Crawford's Late. There are probably in the yards of the City of Brooklyn alone, over a hundred seedling trees bearing very fair peaches, and no doubt the case is similar in other cities. These seedlings are interesting as showing how generally a good peach will produce a seedling which, if it is not quite equal to its parent, often very nearly approaches it in quality. The reason why we do not encourage the owners of these seedlings to turn them to profit by selling the stock to some nurseryman is this: we are decidedly opposed to multiplying varieties, especially in a fruit in which, like the peach, new seedlings are so easily raised, and the varieties already so numerous. Unless a seedling has some good quality not possessed by those of its season already in cultivation, it should not be propagated, and we have not yet seen any that are equal in quality to the standard kinds, though, being grown under exceptionally favorable conditions, they are often of very large size. These seedlings, ripened on the tree, are seen at their best; if, as is the case with all market fruit, they were picked from two to four days before they were ripe, their quality would be much below what it is when they are not gathered until quite ripe. Our advice to those who are fortunate enough to have these seedlings, is to enjoy the fruit, for we can assure them that the chance of introducing them as new varieties and selling the stock to nurserymen is very small indeed.

Manures for Fruit Trees.

In the virgin soils of the new States and Territories, no manure may be necessary. The fairest fruits shown at our exhibitions are from these regions. But in all the older States manure is as essential for the best results in fruit growing as it is for grain and roots. As a rule the orchard is neglected. It is taken for granted that the apple trees, after they are once planted and cultivated for a few years, will henceforth take care of themselves. The land is sowed with grass seed, and is expected to bear a crop of apples and hay annually. Orchards are common that have seen no manure for a dozen years. As the result of many years' experience in growing pears and apples, we think high cultivation is the secret of success. Of course it is possible to apply manure too freely, but the danger does not lie at all in that direction. As a general manure, within reach of all farmers, there is nothing better than stable or yard manure. In a sandy or gravelly loam, we should compost the stable manure with three or four times its bulk of swamp-muck, peat, head-lands, or some other good absorbents. A dressing of 25 cords to the acre every other year, will promote growth of wood, and the formation of fruit buds. If the ground between the trees is cropped with roots or vines, as it may be with profit while the trees are young, the compost may be applied every year, and in larger quantities. Ashes, leached or unleached, are among the best and cheapest manures for the orchard and fruit-yard. A hundred bushels to the acre every fifth year, with or without the compost, will pay abundantly. Situated near the shore, we have used marine manures largely in the cultivation of fruit trees, and have formed a very favorable opinion of their value. Sea-mud, taken from salt-water ditches, is a valuable fertilizer. So is muscle-bed, which contains a good deal of animal matter. The fresh sea-weed thrown up on the beach, eel-grass, sea-lettuce, kelp, rock-weed, and the fine algæ, or mosses, (so-called,) are all excellent, applied to the ground as a top dressing, and plowed in or passed through the barn-yard and compost heap. Salt marsh-turf sods, cut and dried in summer, and used for bedding in stables, makes a good manure for rather heavy soils. The pear and apple rejoice in a soil made rich with these marine manures, and we have never seen a finer growth of wood, or a better show of fruit than in orchards or gardens near the shore. Bone-dust is always good, if we can secure good bone, and this is not difficult now that we have an Experiment Station to detect frauds and constrain manufacturers to sell their fertilizers by analyses. To make sure of a pure article, we have used whole bones, as they are gathered by boys in the village, from the streets and yards, and from the slaughter-houses. These have cost five or six dollars a ton, delivered, and have been used from one to three bushels in ample borders, at the time of planting the trees. These last a long while in the soil, and furnish lime and phosphoric acid as they are wanted. For villagers this is one of the best and cheapest manures for the fruit yard and vineyard.

CONNECTICUT.

THE HERBACEOUS PERENNIAL PHLOXES, or, as they are known in some localities, the "French Lilac," are mentioned by our correspondent at "The Pines"; these are plants that can not be too highly commended. It is probable that three, if not four, of our native species, mostly southern and western, are so hybridized, mixed, and crossed, to produce the named varieties, that it is now hardly possible to trace the parentage of any one of them. The dealers make two classes; "Suffruticosa," the plants not over 2 feet high, with glossy and narrow leaves, and "Decussata," the stems of which are often 4 feet high, with broader and dull leaves; the former are usually earlier than the others, but the line is not very distinctly drawn between them. Some commence to flower in June, and others continue the bloom until frost. Then as to colors, we have in the selfs the purest white, through all shades and tints of cream, rose, salmon, etc., to carmine, light scarlet, crimson, and purple; then we have light shades, with a distinct, dark eye, others with the colors beautifully blended, and still another set with the flowers distinctly striped. New varieties are added every year, and it is almost as useless to give the names for these as for varieties of verbenas. The catalogues must be consulted for the names. If one gets an assorted dozen, or less, of the best, he can hardly go amiss, and we are sure he can hardly get so much satisfaction for the same amount of money expended in any other plants—and being hardy, they give pleasure year after year.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Home Topics.

BY FAITH ROCHESTER.

The Preparation of Coffee.

I have just now read the recipes for making coffee, given in "Common Sense in the Household." I have written some good words about this receipt book, but I can not advise young housekeepers to follow Marion Harland's directions for making coffee. I think that any one who cares for the finest flavor of coffee—that "delicious aroma" which escapes so easily—would prefer to see a common tin coffee-pot on the table, containing the infusion just as it had reached the point of perfection over the fire, rather than have the hot coffee poured into another coffee-pot, however rich or handsome, before serving. I do not know how the beverage can be turned into a silver, china, or britannia coffee-pot without considerable waste of aroma. By many coffee drinkers the aroma is valued more than the "body." Such persons do not like to have the coffee boiled at all. Care should be taken to preserve the "aroma" while endeavoring to secure good "body." As the latter is secured by boiling, while the former escapes with the steam during the boiling process, it is a good idea to reserve a portion (say one-third or one-fourth) of the coffee prepared for the pot, (with egg or otherwise), while boiling the rest of it, putting it into the coffee-pot as that is drawn away from the hottest part of the stove or range, to some position where it will keep hot without boiling. There are various patent coffee-pots or coffee-filters, made with a special view to the preparation of clear and excellent coffee, without any especial art on the part of the cook.

How to make the coffee turn off from the grounds *clear*, is a puzzle to some inexperienced or stupid cooks. I suppose that the most common course is to clear the coffee with egg. Some crush the whole egg, and mix the ground coffee with it, shell, yolk, and white together. Others use the white and shell, leaving out the yolk. This is Marion Harland's direction, and she advises us to *beat* the white of egg first. I don't see the need of it, and I never could imagine what good the shell does. Many of the eggs which come from market, and as many which come from our own hen's nests, are decidedly soiled upon the surface, and should be washed before going into any food or drink. That is one reason why I should leave out the shell.

The principle involved seems simple. The more finely the coffee is ground, the more thoroughly can its properties be extracted by a brief boiling. But the finer the ground coffee is, the less does it incline to settle to the bottom of the coffee-pot, and

the "muddler" is the beverage, unless some art be used to "settle" the coffee. Break an egg at one end so as to pour out the white, retaining the yolk in the shell. Mix the white well with the ground coffee, and if it is not sufficient to wet it all, add just enough water to dampen the whole, stirring it thoroughly together. Put this into the coffee-pot, and pour boiling water over it, (one pint to each two tablespoonfuls of coffee, Miss Beecher says; Marion Harland says one quart of water to half a pint of ground coffee, afterwards adding a cup of cold water); and the egg is immediately cooked, so as to retain all of the fine coffee grounds in its meshes. If this is properly done, no addition of cold water or anything else after boiling, is necessary to produce clear sparkling coffee. I have often admired the work of the egg in clearing coffee, as I have re-

"THE DEXTER" SCROLL SAW.—(*See next page.*)

moved the spongy ball of egg and coffee when cleaning the coffee-pot. It is evident that many housekeepers do not see the philosophy involved in this use of egg, or they would never for a moment suppose that the egg would clear the coffee satisfactorily if put into it at any time after the coffee and boiling water are put together. You want to bind the coffee grounds together with egg, not to add boiled egg to the beverage. Put in the yolk of egg if you like, but it is of no more use than so much water. I prefer to stir it well into the thickening for my cream or milk gravy, where it adds richness and nourishment, and beauty.

We can not always get an egg to settle coffee with, and few of us possess a French filter, or even an "Old Dominion" coffee-pot. This thing you can do—and I have done it many a time—tie the coffee grounds loosely in a thin bag. If the ground coffee is tied up in a tight bag, the water is slow in penetrating and extracting the properties of the coffee. When I use a thin, loose bag for the coffee, I stop up the nose of the coffee-pot, to retain the aroma as much as possible. If the coffee is ground coarsely it will settle itself, if allowed to stand without boiling a few minutes before serving, and then turned out without shaking. The addition of a half tea-cup of cold water when it is removed from boiling, will settle the grounds, but nothing is quite so good and sure as white of egg, if one can not use a good patent coffee-pot.

Professor Blot, in his cook-book, directed the use of water which had *not been previously boiled*, as soon as it reached the boiling point. For breakfast coffee he advised four tablespoonfuls for a quart of water, for strong coffee eight spoonfuls to a quart, and for "black coffee" one pound to a quart. It is this "black coffee" which is used, I suppose, in making the celebrated

Cafe-au-lait.

This is black coffee added to boiled milk—a tablespoonful to a cup of boiled milk, making a strong cup of unusually delicious coffee, famous all over the world as French coffee. The milk must be new and nice, and slowly simmered to a thick creamy richness. In France it is sweetened with beet sugar. Mrs. Stowe says that this coffee is so black and strong as to be "almost the very essential oil of coffee." There is significance in the name of this drink, suggesting that the coffee should be added to the milk, not the milk poured into the coffee. I wonder if any one ever tried both methods without learning the great superiority of the former.

Browning the Coffee.

To make good coffee, it is essential to have the coffee beans evenly and sufficiently browned or roasted, without burning. They are spoiled if roasted until black, but a yellowish-brown is not right. A rich, dark, chestnut-brown is the right color. There are patent contrivances for roasting coffee, but I have not proved their merits. The beans should first be looked over, then put into a spider or dripping pan, and placed in a moderately hot oven, or upon the top of the stove. They brown evenly with less stirring if placed in the oven, than when over the stove, but this advantage is offset by the danger of forgetting the coffee entirely when out of sight in the oven. It must be stirred often.

Coffee and Health.

I seem to see the Editor shaking his head as he comes to this, but I will give you a few of my own thoughts on this subject, if I may be allowed. He shall have his coffee to the end of his days if he wishes it; and I, when he breakfasts here, will prepare for him most cheerfully, the best cup of coffee I can make from such materials as I can obtain.

But I shall be careful how I aid any young person to acquire the habit of coffee drinking. It certainly is perfectly safe, so far as health is concerned, to live without tea or coffee, either, or both. For many persons it is not safe to use either. Both tea and coffee possess medicinal properties. I see that Dr. Smith, in "Foods," speaks of them as "in some respects *antidotes to each other*," though he does not class either among "poisons." He relates, however, that drinking an infusion made from two ounces of coffee, caused him to fall to the floor and remain unconscious for several minutes. But I did not wish to treat the matter scientifically. I frequently hear persons who have no knowledge of the properties of coffee, assign as a reason for giving up coffee, that they found it injurious to them.

Only the other day a lady was telling me her new way of making coffee, from a mixture of scorched wheat-bran and molasses, and half the usual quantity of coffee. She told me why she made this instead of the strong coffee formerly used. First, the hired man complained of dizziness, and said he must give up coffee. He had learned by previous experience, that the dizziness came from the use of coffee. Soon after, the lady's husband complained of a frequent steady pressure upon the brain, which made it almost impossible for him to read at times. To the suggestion that it might be his coffee, he replied that "it was impossible, as he had always used coffee."—"But you will not get any more," his wife answered, "until I have found out whether coffee causes the trouble."—When the coffee was withdrawn from the daily bill of fare, the trouble in the head ceased. When the needs of a large family seemed to require that coffee be supplied, she found that coffee made of wheat-bran mixed thick in molasses and scorched, with a little real coffee added for flavoring, made a drink quite as acceptable to the family as the old coffee of full strength. But none of her children drink even this, and we were agreed in believing that they will never regret not having accustomed themselves to coffee in their early years. I feel sorry for the children who become attached to tea and coffee before they reach years of discretion. I have known girls and boys in their teens, who could not relish a breakfast, however good, unless they had coffee.

I see how the coffee drinkers (tea drinkers too, but now I happen to be writing about coffee) dote upon their beverage, and sometimes seem to pity me because I eat my food without feeling the need of any fluid to wash it down. But I secretly pity every one of them. I can make a good, satisfactory meal wherever I happen to be, and at any time of day, from bread and milk, or crackers and apples.

[Faith Rochester writes as if she feared that we would not let her speak her mind on the coffee question. However we may disagree with her, we always respect her views, for though a "reformer," she is not revolutionary, and all her crochets, if we may call them so, have for their end and object the welfare and happiness of those for whom she writes. She touches the scientific aspects of the coffee question very gently, and she is prudent. If she wishes, we can show her, upon the very highest authorities, that coffee is of great value; if not exactly as a food, in preventing the bodily waste, and that there are very few nationalities that do not habitually and generally use coffee, tea, or some other plant containing a principle that is very nearly the same, chemically, as the principle of coffee, *Caffein*. The great trouble with all such reformers is, that they look upon people as all alike. We know cases in which coffee is injurious, and our advice is to omit it. So to many persons a meat diet is injurious—then omit that. People must be treated as *individuals*, and the peculiarities of each considered; those to whom cheese, vinegar, honey, and a host of other things, are not only unpleasant, but absolutely poisonous, should have their peculiarities respected. We know that many can not safely take coffee, but that is no reason why the large majority who can take it, not only with safety, but with positive benefit, should be deprived of it. If we have coffee, let it be *coffee*, if coffee is not good for us, let us go without, and not do violence to one of the blessings of a good Providence, by mixing "bran and molasses," or any other substitute whatever, and dignifying the horrid compound by the name of "coffee." ED.]

Kitchen Dresses.

Neat, plain calico wrappers are quite popular for kitchen use. They are easily made with a sewing machine, and can be ironed with less trouble than other dresses. They are becoming to most women, and can be worn as loose and comfortable as you please. But they have disadvantages which make themselves apparent to working women, especially to those who wash and iron their own clothes. They annoy me by bursting off the skirt buttons, or breaking out the button holes, as I take some of the divers shapes required in waiting upon the vari-

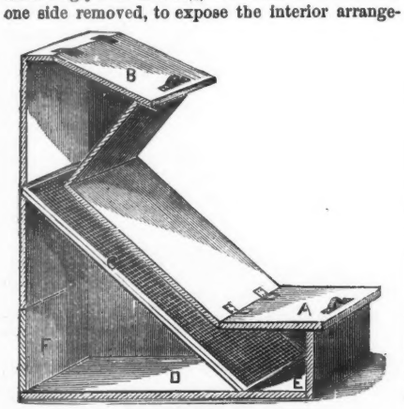
A WINDOW TRANSPARENCY.—(*See next page.*)

ous needs of children. A large apron saves a good part of the dress from soiling, but the sleeves are soon "mussed" and soiled, and the bottom is "drabbled" with dew and dust, and then the whole expanse of calico must go into the tub and pass under the flat-iron. So on bread days, and cleaning days, and washing days, at least, I like better some kind of a dark worsted skirt, with a big apron and sack of calico. There are many pretty sack patterns, and there are pretty ways of trimming, without much labor or ostentation. Ruffles are always objectionable on goods that must be ironed often,

because they add to labor and look "achy." Aprons, cut like apron over-skirts, or meeting behind at the belt, and rounding down toward the front at the bottom, look well with sacks. To hard-working women, who feel the need of saving labor in every reasonable way, the fashionable over-skirt and polonaise are seriously objectionable, because they give a mass of cloth behind, where it is of no use, all of which must be washed, ironed, and draped, whenever the bady's sticky fingers make a muss upon the front breadth. Whatever we may feel it necessary to wear abroad, in order to look "like folks," and avoid dowdyism, we can wear plain and simple clothing at home, and read in the time which we can save by avoiding laborious decoration of our own and children's clothing.

A Simple Ash-Sifter.

In no well managed family is a waste of coal allowed, but the ashes are separated from the cinders, and all of these that can be burned are utilized. Sifting coal ashes is generally a disagreeable job, and it is not to be wondered at that servants shirk it, when allowed to, yet by proper arrangements the labor can be greatly reduced, and the work done rapidly and neatly. We have on former occasions figured various ash-sifters, and we now give one devised by J. H. Ten Eyck, one of the firm of Ten Eyck & Co., of Auburn, N. Y., whose business of reproducing enlarged plain or colored portraits from photographs and daguerreotypes, brings them in relation with people all over the Union. The engraving, reproduced from an exceedingly neat drawing, shows the ash-sifter with one side removed, to expose the interior arrange-



MR. TEN EYCK'S ASH SIFTER.

ment. No measurements are given, because as Mr. T. E. suggests, it may be built in a wood-shed or other outbuilding, and will be of a size to suit the place, or the amount of work required of it. The sifter consists of an inclined sieve—the wire-cloth for which may be had of the desired fineness at the hardware stores—placed at such an angle, that the cinders will roll down of their own weight, while the ashes will fall through the meshes of the sieve. This sieve (*C*) is enclosed on all sides, and is provided with a receptacle (*B*) for the ashes, as they come from the grate, one (*D*) for the sifted ashes, and another (*E*) for the cinders freed from the ashes. Its working is automatic; the material to be sifted being put in at *B*, will slide down the sieve, until stopped by an accumulation of cinders at *E*, but on removing these, the sifting will go on again. The ashes must be removed, as they accumulate at *D*, or the sifter may be placed where the ashes will pass down through the floor, or out at one side of their own weight. Those who, like the writer, use the ashes in earth-closets, will prefer the construction shown in the engraving, in which they are kept dry and ready for use, when needed.

A Window Transparency.

Mrs. M. E. B. The window transparency referred to is made up of ferns, and other plants of pleasing foliage, and grasses. Autumn leaves are also introduced with good effect. All should be thoroughly pressed and dried beforehand, and in selecting the materials, choose those of light and graceful outline. If autumn leaves are used, they should not be varnished, but may be oiled, with linseed oil, or treated with paraffine or spermaceti; either of these may be rubbed on a flat-iron—not too hot, and the leaves ironed until they have taken up what they will of the material. This will strengthen the colors without giving an unnatural gloss. Two pieces of thin clear glass, of equal size, are made perfectly clean, and the ferns, leaves, etc., laid upon one of them according to fancy. If none of the stems cross, there is no need of fastening them, as they may be held in place by pressure; but if an uneven surface is presented, some will need a touch of gum to hold them in place. Having arranged them properly, put on the other glass, and fasten them by narrow strips of paper put upon the edges, using gum, tragacanth, or flour paste. Gum Arabic will not hold well to glass. Colored paper may be put on over the strips, or if strong enough, may be used at first. The engraving will show how the affair appears when finished. We have seen the side lights to a front door thus decorated with very pleasing effect. Care should be taken to have the materials perfectly dry when made up, and the paper around the edges carefully put on. If any moisture is present, or should enter afterwards, mould will be apt to spoil the whole.

Scroll or Bracket Saws and their Work.

Probably no kind of fancy work has so rapidly increased in popularity, as that made from thin wood sawed in various pleasing forms. Indeed, it seems hardly proper to call it "fancy" work, as many of the articles thus made are really useful. We will not undertake to enumerate the many articles of use and ornament that may be made by one having a moderate share of ingenuity, for the designs are so numerous, that those already published form a class of literature—if it can be so called—by themselves. Sawing is a pleasing occupation for young or old of both sexes, and the articles may be used for home decoration or use, or may be disposed of as presents to friends. Every sensible person puts a higher value upon a present which represents the painstaking work of the giver, than upon one that is purchased, even if that be many times more costly. Now that Christmas is approaching, and the annual problem, "what shall I give," presents itself, it is well to think of the many pleasing things that may be made with little saws. Some persons have found it profitable to make sawed articles for sale, but they have now become regular articles of trade, and are sold so cheaply that, in large towns at least, mere hand work can not compete with that produced at the factories. Still there is one way in which such articles may be turned to account. Almost every one is now and then called upon to contribute articles to a fair in aid of some church or charity, and being tired of the usual articles of needle-work, crochetting, etc., will find a welcome variety in the products of the saw. As to the materials and tools, there is a variety of both to choose from. In cities there are dealers in fancy lumber, where black-walnut, rosewood, holly, satin-wood, and various other kinds may be purchased in desired quantities. In small places the cabinet maker must be consulted as to available material. There is one resource everywhere in cigar boxes; there is much difference in the quality of the wood of which these are made, but by a little care that may be selected which may be worked to a very fine surface with sand-paper, and when the work is finished and varnished, no one would guess its former use. As to saws, the simplest is merely a saw in a suitable frame, which may be worked by hand. Some of the finest work we have seen was done by a lady of great skill, who preferred the hand-saw to any other. The best tool of this kind is figured on page 406, last month, where will be found information as to how it can be obtained. Then there are saws to which the motion is imparted by a treadle, the power being given by the foot, both hands are free to guide the work. Of these there are styles which may be fastened to a table or bench, and others have their own table or stand, and are complete in themselves. For a long time the Messrs. Trump Bros., of Wilmington, Del., have been engaged in manufacturing scroll saws, and they make a large number of different patterns. Their latest style is called "The Dexter," a very serviceable and workmanlike machine, in which the vibrating parts are of ash, and the clamps which hold the ends of the saw can be easily and quickly adjusted. This is made of a form to be attached to a table, and be worked by an ingenious detached treadle, or it is mounted on a stand, where it is always ready for use. This form mounted of "The Dexter" is shown in the engraving; it takes up but little room, is sufficiently light to be readily moved, and has sufficient power to do any work that may be required of it in fancy sawing.

GREEN CORN AND PICKLES.—This season has been no exception to former ones in the number of questions concerning canning green corn and making pickles that will look like those sold in bottles. Though we have replied to these many times, we do so again for the benefit of those who have not back volumes. Green corn can not be preserved in fruit jars, but will keep only when put up in tin cans. The necessity for soldering, and for many hours boiling at a temperature higher than that of boiling water, makes the process too difficult and troublesome to be undertaken in the family. It is not always successful with the regular packers....The store pickles are greened by soaking the salt from them in copper kettles or vats; they are put up in colorless vinegar, made from whiskey or other form of alcohol, which is sold as "white-wine vinegar." While these pickles look very handsome, they have not so pleasant a flavor as those made from cider vinegar. The whiskey vinegar is just as wholesome as the other, but it has merely a pure acid taste, without the aromatic quality which makes real cider vinegar superior to all other kinds, not excepting that from wine.

BOYS & GIRLS' COLUMNS.

No. 462. Puzzle Picture.—There was trouble in the neighborhood. First farmer Jones missed his best Brahma cock—then his best hen. Then farmer Nelson found that his trio of Plymouth Rocks—prize birds at that—had only one. Complaints came from farmer Green, and the neighborhood was much excited over the matter. At first it was laid to "tramps," but no

tramps had been seen for a week, and still fowls were taken. After a rain, the tracks showed plainly that the thief was a fox. That fox was a very mischievous one, as you can see by his portrait—which is *not* from a photograph. It was of no use to try to keep poultry, unless that fox could be got rid of. The neighborhood said he must be shot. It was agreed that the man who shot the

fox should be paid $5, and have the thanks of the neighbors. The fox was shot, and if you wish to know the person who shot him—why use your eyes and find him.

The Doctor's Correspondence.

I had supposed that my young friends' questions about insects would stop as soon as cooler weather came. We have had a good deal of insect talk the past season, but it is because my young friends send me specimens, and ask about them. After all, there is nothing about which there is so little known, even among older persons, as the changes of insects, and perhaps the space could not have been better used. Here at the end of the season are several who wish to know

ABOUT THE DRAGON FLIES,

and as the correspondence is already long, I will make a talk about them in a separate article, on another page. ....Generally I expect that my young friends will look to Aunt Sue for their instructions about fancy-work, but as Sarah E. W. asks about a kind, of which I have seen considerable, I will answer her. Her inquiry is about

ORNAMENTAL SPRUCE WORK,

or fancy articles made from spruce twigs, from which the leaves have fallen. The material generally used is the

Fig. 1.—CHAIR MADE OF SPRUCE TWIGS.

small shoots of the Norway Spruce, as that is very common in cultivation, though I do not see why those from our native White or Black Spruce would not answer as well. The twigs are cut, and laid away to dry; when quite dry, the leaves will fall off themselves, or by a little shaking. To make them up, soak the twigs in warm water, until so softened that a pin will pass through them easily. Common pins of different sizes are used for putting the pieces together, and if one has a pair of pliers or small pincers, and cutting nippers, such as are used for cutting wire, the work may be done all the easier. The work being put together while the twigs are soft, will need careful handling at first, but when they dry, the pins will be held firmly. The articles that may be made, will depend upon one's fancy or ingenuity; very pretty frames may be made, for small photographs, either to be hung up, or in form of an easel, with a support at the back, so that the frame will stand on a shelf or table. Very pretty miniature furniture may be made in this way, of which the chair (fig. 1) is an example; by selecting the twigs with buds upon them, the beauty of the work will be increased. An ingenious person can work up the material into a great variety of pretty forms.

WRONG IN MY JAPANESE.

In some talk in August last about the markets in Japan, I mentioned a large radish in common use as "diakon." A young Japanese, through "F. M. G.," informs me that the name should be *daikon*, from *dai*, large, and *kon*, root. I thank the young Jap., and though the mistake occurred so long ago, make the correction.....EMMA C. W.—Of course, the Phiz-Phiz Falls exist only in the imagination of the artist.....Here is something that did not turn up in any of the youngsters letters, but I think it may interest you. Some time ago a box of powder for

POLISHING SILVER AND OTHER METALS,

was sent me, with the request that I would try it. I opened the box and found an almost pure-white powder; I felt it between my fingers and found it very fine—almost *impalpable*, as those powders are called, the particles of which are so fine that they can not be felt. Somehow the powder seemed like an old acquaintance. I smelled of it—no odor—I put some upon my tongue—no taste. I then looked at it, taking, to help my old eyes, a microscope that would magnify several hundred times, and then I knew all about the powder. Figure 2 shows

2.—DIATOMS, MAGNIFIED.

what I saw in the least bit—less than you could put into a mosquito's eye—provided you should try. These were some of the most common forms, but there were others, all beautifully carved and marked, and as transparent as glass. If you were to guess what these forms are, you would probably say that they were the shells of some minute animals—and that is what they were at one time supposed to be. It is now known that they are not from animals at all, but from plants. It would be very difficult to describe these little plants so that you could understand much about them.

THEY ARE CALLED DIATOMS

by naturalists, the name being from a Greek work meaning "a separation," as some of them break up in a curious manner. They live in both salt and fresh water, and the study of them requires the most powerful magnifying glasses. The living part of the tiny plant is a brownish jelly, and this has the power of forming for itself a sort of frame-work to strengthen and protect it; this is not of lime, as with some minute animals, but a shell, as it may be called, of pure silex, or flint. Many large plants have their stems strengthened by this mineral substance; the straw of our wheat, and other grains, contain a great deal of it, but the diatoms contain so much that when it dies, it leaves a cast or frame-work of silex—which is the same as quartz, crystal, and flint—showing its shape, and this cast is often marked in such a delicate manner that they are among the most beautiful of objects for the microscope. You will perhaps think then, that to make a polishing powder like that sent to me, they have only to catch a great quantity of these little *diatoms*, let them die, and use their flinty shells. Not so—and here comes the most curious part of all.

THE POWDER IS FOUND ALREADY PREPARED!

In immense quantities too, for sometimes the layer is several feet thick and extends for a great distance. One of the wonderful beds of this substance is in Virginia, the city of Richmond is underlaid with it, several feet below the surface, the bed is in some places 30 ft. thick, and is known to be some 50 miles in extent. "How did they come there?"—You may well ask that question. As deposits of a similar kind are forming now at the bottom of the sea and of fresh waters, there can be little doubt that the places where Richmond and Petersburgh now are, were once under water, and that these little diatoms lived in this water, died there, and their coats gradually gathered to form this great mass. The largest of these objects is not more than the one-hundredth of an inch across, while most of them are much smaller—so small that they can only be seen by powerful glasses. What length of time it must have taken this deposit to form land; the numbers of diatoms that must have lived and died to make it, are beyond computation.

Aunt Sue's Puzzle-Box.

METAGRAM.

From a word of six letters find suitable words to fill the following blanks:

—— Smith was going —— (by ——), with his family: he had no ——, but he took with him, three animals, a ——, a ——, and a —— ——. One day, after ——, he took his brother by the ——, and together they strolled by the ——. His brother, who was a ——, pointed out to him the —— of his vessel, and said he could climb it with ——. He liked the Captain very much, but disliked the —— exceedingly, and pointing to a —— (——), said, "I wish he were there, I might then have some ——," which made his brother ——. C. M. G.

TRANSPOSED AVIARY.

(Example.—*I peg on*,—pigeon.)—1. Chod fling. 2. Drug bin himm. 3. Finger shik. 4. Hinge lating. 5. Girl tans. 6. One pig. 7. No calf. 8. Slow law. 9. Ant's heap. 10. Drag tripe. ISOLA.

NUMERICAL ENIGMA.

I am composed of 34 letters:

My 25, 12, 5, 3, 19, is a flower,—a pet name.
My 22, 15, 27, 11, 24, is a garden plant.
My 6, 16, 13, 10, is a sound.
My 1, 20, 4, 21, 18, 34, is a superior.
My 9, 33, 28, 31, is a measure of length.
My 14, 8, 13, is to obtain.
My 29, 23, 16, 32, 17, 25, is a defense.
My 7, 26, 30, 2, is a particular taste, a kind of tartness.
My whole is a stirring motto. WILLIE.

NINE CONCEALED FRUITS.

We began our search for Tim Horan, getting Ed to assist us by asking Fred to see Mr. Cole, Monday or Tuesday, and by giving the *News* a description of the way Mr. Spears said the cur ran through the street on a double-quick step, each moment crying "catch me if you can," when plump came Dan against him and cried "Stop! run either way and you are caught and good for the jug; rap Ed if you dare, but before you rap, please remember each strike will add to your penalty." But Tim got away and is still at large. HOPE.

ANSWERS TO PUZZLES IN THE SEPTEMBER NUMBER.

COMPOUND CROSS WORD.—Frederick—Georgiana.

DIAMOND PUZZLE.

P
E R A
T O U G H
P R U S S I A
O U S E L
L I D
A

DECAPITATIONS.

1. Chide, hide.
2. Drail, rail.
3. Sally, Ally.
4. Dream, ream.
5. Wharp, harp.
6. Yearn, earn.
7. Enorm, norm.

BIBLICAL ENIGMA.—Wisdom is better than rubies.

PUZZLE.—Dictionary (di-ct-ion-ar-y).

ALPHABETICAL ARITHMETIC.—123)68455(356

Key.—"Gay flowers."

CONCEALED SQUARE WORD.

S A L E M
A B I D E
L I M I T
E D I L E
M E T E R

PI.—A plano-forte maker says that, of all manufactured things, pianos bear the noblest character, since they are classified as being grand, upright, and square.

CONCEALED PROVERB.—A good anvil does not fear the hammer.

METAGRAM.—"TOWN," in which may be found—wot, tow, own, won; town, wont, tow, ton; now, not, no; on; and O!

DOUBLE ACROSTIC.

L— ouis —A
O— thic —L
U— brl —C
I— mill —O
S— cot —T
A—methys—T

SYNCOPATIONS.

1. Rapid, rapid.
2. Resin, rein.
3. Negro, Nero.
4. Beset, beet.
5. Range, rage.
6. Farce, face.

ANAGRAMS.—1. Parenthesis. 2. Governess. 3. Outrageous. 4. Brunettes. 5. Embroidered. 6. Complaints. 7. Charitable. 8. Barbecue. 9. Balustrade. 10. Dislocated.

ENIGMATICAL BOUQUET.—1. Bachelor's Buttons. 2. Hollyhock. 3. Golden Rod. 4. Jonquil. 5. Sweet Pea. 6. China Aster. 7. Heart's Ease. 8. Monk's Hood. 9. Buttercup.

BLANK-REVERSALS.—1. Go, og. 2. War, raw. 3. Room, moor. 4. Was, saw. 5. Rat, tar.

Send communications intended for Aunt Sue, to Box 111, *P. O., Brooklyn, N. Y.*, and *not* to 245 Broadway.

The Metric System of Measures and Weights.

When I had finished the talks with my "Correspondents," I thought it seemed rather long, but when I remembered that I had promised to say something about the Metric System, I found it would have to be still longer, so I thought that on the whole, it would be better to put this metric matter in a separate article. I told you something, last month, of the beginning of the measures and weights we now use, and how they started with the rude and uncertain standards of grains of barley (barley corns) and of wheat. We have three different kinds of weights, three sorts of liquid measures, and so on. The awkwardness of this is seen when we have to convert one of these into another, such as cube measure into liquid measure, or Troy into Avoirdupois weight. In view of this, and the difficulty of fixing a standard, by which we may be sure that a measure or weight is *right*, our scientific men have long been trying to make a change for the better. Several plans have been talked of, but the majority of those who have studied the matter are in favor of that established by the French, which is called

THE METRIC SYSTEM,

because the *metre* is unit or starting point. The name *metre* is from the Greek and means "measure." It is a measure of length, and one great beauty of the metric system is, that from the metre, all other measures, solid or liquid, and weights also, are derived. The system is sometimes called the "Decimal System," and it is *a*

decimal system as all its divisions are in tens, but decimal system does not mean the same thing as "metric system." Our coins are upon the decimal system, and we might take our pound and divide or multiply it by ten, and thus make decimal weights, but it would not be a metric system. So it is best to start right, and call it the *metric* system, as its starting point is the metre. Now as not only the measures of length, but of square, of solid, and liquid measures, all depend upon the metre, you will want to know first about that. It was near the close of the last century, that the French Government determined to establish a new system of measuring and weighing, and commissioners were appointed to consider the matter. For the unit or starting point they wished something that would not (like the barley corns) be uncertain and vary, but something which would be permanent, so that if all the measures in use should be broken or destroyed, they could start anew. Several plans were proposed, but they concluded to take

THE EARTH ITSELF

for a starting point—as that would probably last without much change as long as measures would be wanted. The distance from the equator to the pole (a quadrant of the meridian) was the beginning, and one-ten-millionth of this, taken as the standard of measure, or the *metre*. Of course this whole distance was not measured, but a sufficient portion of it was, by means which astronomers and surveyors understand, but would be difficult to explain. At all events, the metre thus fixed upon was adopted by the French Government in 1801 as the legal standard of measure. You will wish to know what the metre is like, and how it compares with the measures we use. In a rough way we may say that it is three and a third inches longer than our yard of 36 inches. To be exact, it is, according to the latest comparisons, equal to 39.37043 inches. In dividing the metre the decimal system is used; one-tenth of a metre is a decimeter, one-hundreth a centimetre, and one-thousandth, a millimetre. An inch is a trifle over two and a half centimetres. In these divisions of the metre, the Latin terms are used for tenth, hundredth, etc., but in longer measures, in which the metre is multiplied, the Greek numerals are used. Thus ten metres are a Decameter, one hundred metres, a Hectometre, one thousand metres a Kilometre, and ten thousand a Myriametre. A mile is a little over a Kilometre and a half or 1.6093. These names look and sound strange at first, but they are easily learned, and then when a length or a distance is mentioned you know at once what relation it has to a metre. This is very different from, and greatly easier than, line, inch, foot, yard, fathom, rod, furlong and mile, which bear no uniform relation to each other, but in some cases we multiply by three (3 feet make one yard), and then again by forty (40 rods 1 furlong). To get square and solid measure from the metre is very simple, but for fear that some of you may think this is rather dry for boys and girls, we will let that go until another time. Measures of a metre are now to be had at the stores, as they are made by those who make rules and other measuring instruments.

I hope that many of you will wish to remember this method of measurement, so I will put it as a table.

Millimetre	1/1000	of a Metre.
Centimetre	1/100	" "
Decimetre	1/10	" "
METRE	1	——
Decametre	10	Metres.
Hectometre	100	"
Kilometre	1,000	"
Myriametre	10,000	"

I have no doubt that some of you will live long enough to see these measures in common use. THE DOCTOR.

The Little Runaways.

"Where can those children be?" asked Mrs. Warner, for she had missed her own little Alice, and her niece, Alice's cousin Kate, who was from the city, making a visit upon the farm. Not in the parlor, not on the porch, not in the front yard, or anywhere in sight, could the children be found. There were the nice new swing, the child's wagon, the building blocks, and all the playthings, but no children. Mrs. Warner began to be anxious, and started to find the little ones. The garden, the carriage-house, the orchard, and the barn, were all hurriedly visited, but no Alice and Kate were to be seen. Now, thoroughly frightened, the mother was about to go to the house to ring the bell, to call the men in from the field to search for the lost children, when she heard a little laugh—followed by "Oh, isn't it nice!"—"Yes, besser dan the big carriage"—"Yes, so much room, for us and dolly and kitty, and no high seat to slip off of."—"Let's stay all day here, it's real dood"—said Kate. Mrs. W. looked over the fence, and there, in a wheelbarrow, in which the gardener had been wheeling earth, were the two children, the doll and the kitten. The children's faces showed perfect happiness; they were enjoying the rude barrow, more than if it were the most costly child's carriage. She thought for a moment of soiled dresses, and the washing, but the faces of the children quite made her forget these. The little ones were safe, happy, and contented—what more could a loving mother wish.

Aunt Sue's Chats.

SUE L. GOSSER has had a present of an organ, and wants to know how to whiten the keys which are growing yellow. I dare say—Susie—that you have been so careful with that new organ, that you have always shut the lid carefully to keep out the dust. In so doing, you have shut out *the light*, and that is why the keys are turning yellow. There are plenty of recipes for whitening ivory, one of which is, to wash it with alum-water that has been boiled and allowed to cool. But when I have wanted to bleach any small ivory articles, I have put them into a glass jar and placed the jar in some sunny window, or out on a shed, indefinitely, until the ivory had become white; and I should think if you let the sun shine on your keys occasionally, that it would bleach them.

TONY.—Why should I "excuse bad spelling?" Haven't you a dictionary in the house to which you could refer if not quite sure about the spelling of a word?—Suppose you go to it now and see if you can find any such words in it as "*collum*," "*neice*," "*pleas*," and "*boght*." Some of my nieces and nephews write to me—"Pleas *except* these puzzles," and I usually do.

LIZZIE D. W. wishes to know how to "make pop-corn balls." Of prime importance is the "popping" of the corn. This should be conducted so as to produce a complete "turning inside out" of the grain, and is best done by taking a small quantity at a time, just sufficient to cover the bottom of the "popper." Then let the corn, which, by the way, should be old and thoroughly "dry," get well warmed through, by holding the popper and contents far enough from the fire; when well heated, approach the thing nearer the fire, until the first kernel begins to "pop," then approach the fire as closely as you may, so that the remainder shall pop as rapidly as may be. During the entire proceedings the corn must be kept "moving" by shaking constantly. Having the corn popped, be prepared with a thin syrup, almost at the sugaring point. This syrup may be either of molasses or sugar and water, as may be preferred. Fill a cup of any desired size with the popped corn, pour over the corn a sufficiency of the syrup to wet every grain; then, with a spoon, press the kernels sufficiently to make them stick together, and with a spoon carefully work the contents of the cup into a rounded shape, and so out upon a plate, sheet of paper, or tin, or what ever is to hold the balls.

WHERE THE LITTLE RUNAWAYS WERE FOUND.

T. M. HENRY wishes me to "give the date and place of each world's fair that has thus far occurred." "International" fairs were held in Paris (France) in 1802, and in Birmingham (England) in 1849. World's Fair in London, 1851; New York, 1853; Paris, 1855; London, 1862; Dublin, 1865; Paris, 1867; Sweden, 1868; Moscow and Copenhagen, 1872; Vienna, 1873; Santiago (Chili), 1875; Philadelphia, 1876; Sidney (Australia), 1877. Three Annual International Exhibitions were held in London in 1871, 1872, and 1873.

PEPITA.—The best raisins, and the most of them, come from Spain, Malaga and Valencia being the principal places of export. You know, no doubt, that raisins are dried grapes, and of the finest, largest, and sweetest kinds. Our common grapes will not make good raisins, as they dry up all to seeds and skins. The grapes sometimes dry into raisins on the vines, but usually they are picked and dried in part in the sun, and in part by fire heat. Sultana raisins come from Turkey; they are made from a small grape that has no seeds. The same kinds of grapes that grow in Spain grow in the wonderful climate of California, and already large quantities of raisins are made in that State.

LIZZIE D. W.—To make icing for cake, beat up the white of one egg until the froth will bear up the blade of a case-knife; then sprinkle into it (by degrees, and stir thoroughly) a little more than a quarter of a pound of finely pulverized sugar. When you have done that, sprinkle over it a scant half teaspoonful of corn-starch, and stir it up; then add one teaspoonful (a little at a time) of water. Some people use, instead of egg, a little gelatine dissolved, but I think you will prefer the egg.

F. CLARK.—Thanks for puzzle. I have sent your botanical specimen to "The Doctor"; he is authority in such matters.

CLUMSY.—You can get the oil out of your carpet by spreading dry buckwheat flour thickly over the spot; it will absorb the grease. Brush off the greasy flour and renew afresh, until all the oil is removed.

ADDIE.—Raw potato cut up into small squares and shaken up in a bottle, will often remove stains; or try a little washing soda and water, with some small gravel-stones, or better yet—shot, and shake until the friction of these against the glass removes whatever may adhere.

Thanks for letters, puzzles, etc., to H. W. S., Esther, J. H. L., Hope, J. W. W., Florence M., T. F. D., H. S., L. C. W., A. F. T., Estelle S., B. S. B., Anna L. S., Peter, Oriole, Eddie, and others, whose favors I hope to answer at some future time.

Something about Dragon Flies.

It is not to be wondered at that several young people should wish to know something about Dragon-flies, for they are among the most noticeable of insects. Their long slender bodies, their large heads, with prominent eyes, and their wide spread, gauzy wings, which reflect beautiful colors in the sunlight, are sure to attract attention. More than all, their rapid flight, now darting with the greatest swiftness, then remaining stationary over a spot, and then as suddenly moving backwards, gives them a mysterious air that no other insects have. It is no wonder that they have been looked upon as harmful insects, for they go about in a silent, strange way, as if there was some mischief to be done. There are over 400 kinds of Dragon-flies, found in various parts of the world, of which we have our share in this country; about 30 are known to live in the Northern States, and there are others in the South, but while they differ in size, color, etc., all have similar ways of living, and a description of the habits of one, answers for all. While their long, snaky bodies, their savage look and their darting flight, make them suspected, and they are generally looked upon as dangerous, I may as well say here, and answer several questions at once, that they are perfectly harmless, so far as man is concerned. They have no piercer or sting, and though the larger ones may be able to pinch with their jaws, if you put your finger there and try to make them do it, they do not bite, sting, or otherwise harm people in any manner. I know that they have a bad reputation. When I was a youngster, they were called "Devil's Darning Needles," and I was told by the older boys that if a boy should tell a fib, one of these "Darning Needles" would come and sew up his mouth. All my playmates must have been very truthful, as I never saw one with his mouth darned by one of these "Needles." But such notions are not found among boys alone; in various places these insects are called by names which show that they are thought to be dangerous. In England they are called "Horse-stingers," and in Scotland "Flying Adders." In some parts of this country they are known among the boys as "Snake Doctors," it being thought that they attend upon snakes, probably because they are

seen hovering over the ponds where there are water-snakes. On the continent of Europe they have more pleasing names. In France, they are *Demoiselles*, or "ladies," and in Germany *Wasserjungfern*, or "Virgins of the Water." In traveling in the Southern States, I had heard them often called "Mosquito Hawks," and was told that they devoured so many mosquitoes that it was considered wrong to kill one of them. At last I had an opportunity to learn that, for once, a popular notion was correct. One excessively hot day in June, I happened to

THE LIFE HISTORY OF THE DRAGON-FLIES ILLUSTRATED.

be on Lake Ponchartrain, not far from New Orleans; there were several pleasure houses, to which the people came from the city in the cool of the evening for a drive, and for ice-cream and other refreshments. These places were mere sheds, or shelters, and on the inside of them were mosquitoes by the million, resting in the heat of the day, to be all fresh to receive the evening visitors. I never before, or since, saw so many mosquitoes, for they were so thick as to make the sides of the building look gray. There were also hundreds of Dragon-flies—good, big fellows—which flitted about and fed upon the mosquitoes at such a rate, that I saw at once that they were well named "Mosquito Hawks." When we see these insects so busy darting here and there, they are no doubt hunting for mosquitoes and other insects upon which they feed. The engraving shows one of the Dragon-flies on the wing, and gives an idea of the general appearance of all, though many are much smaller in the body, and in spread of their wings. But the early life of the insect is quite as interesting as that of its perfect or winged state. The female insect places her eggs upon the stems of water plants, just at, or below the surface, and from these hatch out the *larvæ*; or the first form of the insect. The larvæ of the butterflies and moths we know as caterpillars, and that they live on plants on the land, but the larvæ of some insects, including the mosquitoes and Dragon-flies, live entirely in the water until they are ready to change into perfect insects. The larva of the Dragon-flies is sometimes called the "Water Tiger," and well deserves that name, for it is one of the most voracious of living creatures. The insect in the water at the lower part of the engraving—the one directly in the center—shows the larva as it usually appears. These "Water Tigers" may be found in pools and muddy ponds, and in still places along the margins of rivers, and, though not handsome to look at, they are very interesting to watch. If you wish to study their ways, you can easily catch them with a small net, and put them in an aquarium, or what is better, a jar by themselves, in which some water plants are placed. If you put them in an aquarium, there will after a while be little else left, at least of the smaller inhabitants, for they attack creatures much larger than themselves. It is difficult to say which is the most curious in the "Water-tiger," (which is a convenient and shorter name for the Dragon-fly larva), its head or its tail. Curiously enough, the creature breathes through its tail! You no doubt know that fishes breathe through gills placed in the head, and as the water flows over these, they take up the air that is dissolved in the water, and thus carry on a slow kind of breathing. But in the "Water-tiger" its gills are placed near its tail; it takes in water there through an opening, and forces it out again, and that is its way of breathing. But this opening answers another purpose. The animal crawls quite slowly, and as it is a great feeder, it would not get much food, did it depend solely upon its legs. If you watch one of them in search of food, you will be surprised to see the sluggish fellow dart for its prey with the greatest speed, and this motion is one of the many strange things about the creature. Ordinarily the water passes out of the opening in the tail quite slowly, but when necessary, the insect can force the water out with a sudden squirt, and that pushes it along through the water with great swiftness, upon the same principle that a rocket is sent through the air. Not less curious are the arrangements at the other end of the insect—at the head. As usually seen, it appears as in the figure at the middle of the lower part of the engraving, a quiet and rather harmless looking larva. But let a small insect or other animal come within reach, and, presto, the mild looking fellow shows a savage pair of pincers, and becomes the very tiger-ish animal seen in the right-hand lower corner of the engraving. This arrangement for taking its prey is called a "mask," and when not in use, is bent down under the head of the insect, and quite out of sight; it is so arranged that whatever is caught by the jaws of this mask, is brought, when that is folded under, right opposite to the true mouth of the insect, where it can be eaten. These Water-tigers not only prey upon other water insects, but even devour small fishes, and seem to live only to destroy and eat other living things. They go on feeding and growing, some one year, and some, it is said, for two years, when the time comes for them to change to perfect insects—to leave the water, and begin a new life in the air. You know that when caterpillars and most other insects—as I have shown you on several occasions—make this change, they go into the pupal state, and either spin a cocoon, or form a chrysalis in some way, remaining apparently lifeless for some time, and at length break their enclosing shell or skin, and come out a perfect butterfly, moth, or beetle. But the Dragon-flies are quite too busy to keep still, and even in the pupal state are as lively and greedy as ever. They change their skin, and show by a hump, where their future wings will be, and the eyes of the perfect insect may be seen under the skin, but as to keeping quiet, it doesn't know how. At last its time comes, and the pupa crawls up the stem of some plant, and leaves the water forever. Instead of breathing the water through its tail, it now has to breathe air through openings in its sides, and instead of propelling itself, rocket-like, through the water, it has to dart through the air, and for this it must have wings. All these are provided. The pupal skin at last bursts, and the perfect Dragon-fly slowly pulls itself out, as you see at the left hand of the engraving. At first the wings are damp, limp, and useless, but they gradually spread and dry—and what beautiful wings they are! They are worth a close examination; see the delicate frame-work, so curiously netted, with a beautiful membrane filling the spaces between; this is wonderfully thin and transparent, and the light often plays on it with rainbow colors. Can anything be more complete than this transformation—from an ugly inhabitant of muddy water, to a light and graceful creature of the air! But there is one thing which the Dragon-fly does not leave behind him with the remains of its former life—he has his appetite, and skims away through the air, devouring other insects, quite as effectively, as it did before as a "Water-tiger." There is one thing about the perfect insect, you will not fail to notice—that is the great eyes, or rather masses of eyes, as the microscope shows them to be; these, while the insect is alive, have beautiful colors; besides these, there are three little single eyes, usually placed in a row on the front of the head. So far from the Dragon-flies being dangerous, we may look upon them as not only harmless, but so far as they destroy mosquitoes, as really beneficial insects—at any rate, I hope that I have shown you that they are really interesting ones. I have said nothing about the scientific names of these insects, their being several different genera, or kinds, and only those who study entomology, will care to know the systematic names, but it is well to know that these belong to the division or sub-order *Neuroptera*, which means nerved-winged, and includes, besides the Dragon-flies, the May-flies, the Lace-wings, and besides others, the Caddis-flies, one of which I told you about, as the insect that builds a stone-house.

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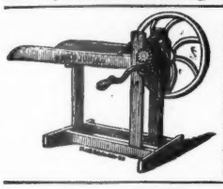

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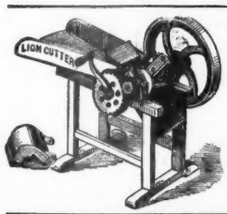

Lion Feed Cutter,
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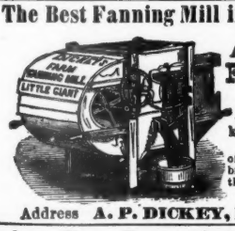
The Best Fanning Mill in the World.



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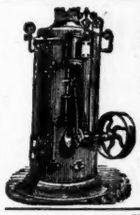

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Premium Farm Grist Mill.

Grinding parts are of **Steel,** Grinds all kinds of grain rapidly. Is durable, simple, and cheap. Is suited to all kinds of horse-powers.
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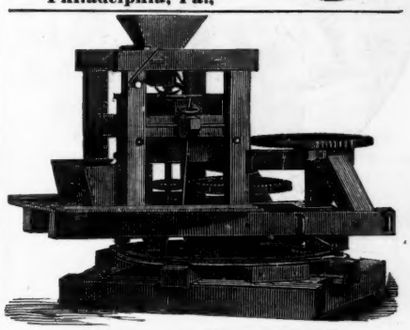

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Horse-Power and Grist Mill combined.
Friction avoided—Power & Space economized.
A long felt Want Supplied.
Every Farmer his own Miller.
This mill, with twenty inch stones, worked with two or four horses, will grind from three to five bushels of fine meal or flour per hour. It is simple and durable in construction, and can be easily managed by any farm hand. It occupies no more space than is required by any ordinary horse-power.
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Portable Corn & Flour Mills,
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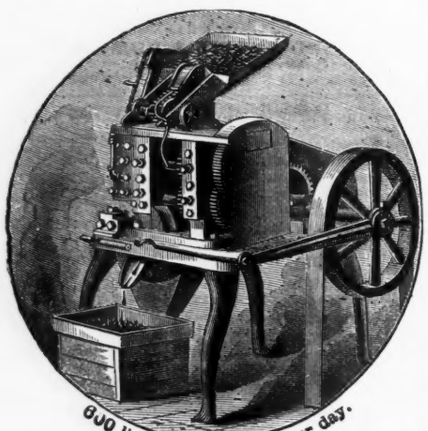
THE BEST HORSE SHOE NAIL EVER MADE.

About ten years ago the **GLOBE NAIL COMPANY of Boston,** put on the market the first pointed, polished and finished Horse Shoe Nails ready for driving. Previous to that time all Horse Shoe Nails were pointed, and most of them made, by the shoers in their own shops at the rate of but six pounds per day.

The **Globe Nail** was at once found to be much cheaper and better than any then in use It soon became so popular that all manufacturers of Horse Shoe Nails were compelled to make their Nails to resemble the Globe. For the last ten years it has been the model. Each year the Nail has been greatly improved in quality, and to such a point have we educated the shoers that now they will hardly use a nail unless it is absolutely perfect



600 lbs. Finished Nails per day.

At the Centennial Exposition in Philadelphia, we were awarded the Medal and the following report, far stronger than that given upon any other Nail:

INTERNATIONAL EXHIBITION, 1876.
U. S. CENTENNIAL COMMISSION.

[BUREAU OF AWARDS.]

PHILADELPHIA, June 22, 1876.

No. 239 Globe Nail Co., Boston, Mass.:

Horse Shoe Nails, Pointed, Polished and Finished. The uniformity in size, smoothness of finish, hardness and tenacity of the iron, closeness of fibre, and excellence of the head and point, the tensile strength of body, and riveting properties of these Nails, unite in making them of the very highest class of manufacture.

Recommended for an Award of Merit.

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CHARLES STAPLES, Portland, Me.,
G. L. REED, Clearfield, Pa.,
DAV. McHARDY, Aberdeen, Scotland,
T DIEFENBACH Germany,
} Group Judges XV.

We annex a sample of the testimonials we receive daily from all parts of the country:

ST. LOUIS, MO., June 8, 1877.

GLOBE NAIL CO., BOSTON, MASS.

Gentlemen: Find enclosed advertisement and postal card concerning your Nail. [Referring to a scurrilous advertisement and postal card, disparaging the Globe Nail, circulated by a rival manufacturer over the humbug signature of "Humane Society for the Prevention of Cruelty to Animals." No Society bearing that title ever existed.] As I take a great interest in the prevention of cruelty to animals, —horses in particular,—I desire to say a few words in favor of **The Globe Nail.** Though I am not a very extensive Horse Shoer, yet I have used enough Nails of the different makes to speak knowingly. I have used the Globe Nail in my shop and on the race track for six years, on all classes of horses from the heavy draft horse to the tender footed running horse; and I can safely say **it has no superior in point of Toughness, Shape, and Finish, if it has any equal.** I have used about fifteen hundred pounds of Globe Nails a year for the last six years, and in that time I have found four imperfect Nails, two of which I returned to you about two years ago and received in return four perfect ones, for which accept my thanks. If my men had no better sense than to drive those imperfect Nails in a horse's foot, I would not consider it the fault of the Nail if the horse was lamed. If bosses would look more to the competency of their men and less to trying to get shoeing nails a few cents a pound cheaper, we would have fewer lame horses. **I know for safety and durability, with a man who understands his business to drive them, your Nails can't be beat!** I am willing to pay, without any suit, for all horses that are lamed in my shop by using the Globe Nail. As long as it is made as at present, I shall continue to use it, even if I could get other Nails for nothing. I consider it the safest Nail that was ever driven in a horse's foot.

Yours Very Respectfully,
(Signed.) P. H. O'NEILL,
Horse Shoer, No. 1007 Broadway.

P. S.—I think I could get every boss in St. Louis to sign this if I thought it necessary. P. H. O'N.

The best Horse is sure to win. SO CLEAR THE TRACK FOR THE

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6	Casters.... (do. do. do.)	$ 7 50	16	63
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74	Hunting & Target Rifle (Remington)	$22 00	34	....
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76	Revolver (Remington)	$ 9 00	17	90
77	Turn-table Apple Parer (Goodell Co.)	$ 1 00	3	....
78	Climax Apple Corer & Slicer (do.)	$ 1 00	3	....
79	Family Cherry Stoner (do.)	$ 1 00	3	....
80	Bay State Apple Parer & Slicer (do.)	$ 1 50	4	....
81	"Saratoga" Potato Peeler & Slicer (do.	$ 1 00	3	....
82	Sewing Machine (Remington)	$50 00	66	....
83	Family Scales (Fairbanks & Co.)	$14 00	21	140
84	Clothes Wringer (Best—Universal)	$ 8 00	16	80
85	Worcester's Great Illust'ed Dictionary	$10 00	18	100
86	Any back Volume Agriculturist (Unbound. Post-paid.)	$ 1 75	.....	20
87	Any Two Back Volumes do.	$ 3 50	.....	35
88	Any Three do. do. do.	$ 5 25	13	50
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98	A $10 Library (your choi'e.)	$10 00	18	....
99	A $15 Library do.	$15 00	24	....
100	A $20 Library do.	$20 00	31	....
101	A $25 Library do.	$25 00	38	....
102	A Choice of Good Books. (See Description, p. 408.)			

☞ *Every Premium article is* **new** *and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The Premiums,* **Nos. 15, 18, 29 to 33, 37 to 41, 49, 51, 54, 55, 59 to 62, 65, 75, 76, 86 to 102,** *inclusive, will each be delivered* **FREE** *of all charges, by mail or express (at the Post-office or express office nearest the recipient) to any place in the United States or Territories.—The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance desired. See* **Descriptions** *on the following seven pages, 402 to 408 inclusive.* **Illustrated List** *sent* **free** *to applicants.*

AMERICAN AGRICULTURIST.

ORANGE JUDD COMPANY, Publishers, 245 Broadway, N. Y.

ANNUAL SUBSCRIPTION **Terms (always in advance):** $1.60 each for single copies: Four copies, $1.30 each: Ten copies, $1.20 each: Twenty copies and upward, $1.10 each. These rates *include Postage*, in each case, which is pre-paid *by the Publishers.* Papers are addressed to each name.

The full Descriptions and Illustrations of the Premiums, with various Notes and Explanations, were published in 8 extra pages of our October number, which can not be repeated for want of space. Any one not having that number, can have one mailed, post-paid, for 10 cents; or a Premium Sheet only, will be mailed to any address without charge.

PREMIUM Explanatory Notes. N. B.

Read and carefully Note the following Items: The Table, on page 401, tells the *name* and *cash price* of each article, and (in last column but one), gives the number of names sent in at the regular price of $1.60 a year that will secure any premium article. (The last column gives the number of names at the lowest club price for 20 or more names, that is $1.10 each, but only a part of the premiums come under this head. Some persons quickly raise large clubs by taking all the names at $1.10 each, and themselves pay the difference, 50 cents each, and even thus get the premium articles very cheaply.)....(*a*) All subscribers sent by one person count, though from several different Post-offices. But....(*b*) Tell us with each name or list of names sent, that it is for a premium....(*c*) *Send the names as fast as obtained*, that the subscribers may begin to receive the paper at once. Any one can have any time desired, up to next July, to complete any list, but every premium desired will be sent as soon as earned and ordered....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion at least should be *new* names; it is partly to get these that we offer premiums to canvassers....(*f*) One or two Specimen Numbers, etc., will be supplied free, as *needed* by canvassers, (when 3 cents per copy is furnished to pre-pay postage), but they are expensive, and should be used carefully and economically, and where they will *tell*. Other specimen numbers will be sent, post-paid, *to canvassers only*, for 10 cents each. The price to others is 15 cents....(*g*) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd Company, or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Post-master, and take his receipt for it. Money sent in any of the above ways is at *our* risk; otherwise it is not.

☞ Premium Articles for Sale.

It sometimes happens that persons, who have not time to secure these valuable and useful articles by raising clubs of subscribers, are desirous of purchasing one or more of them, and wish us to procure or select them. For the accommodation of such, *we will supply and send most of these premiums for cash*, at the prices in the Descriptive List, and prepaid or otherwise, as stated.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 416.

The Georgia State Horticultural Society held its second Annual Meeting at Macon, on Aug. 2d. There was a remarkably fine display of fruits, flowers, etc. P. J. Berckmans, Esq., of Augusta, was re-elected President, and J. S. Newman, Esq., of Atlanta, Secretary. This new Horticultural Society, in addition to an active Agricultural Society, and a State Department of Agriculture, that is second in efficiency to that of no other State, show that Georgia is rapidly progressing in the things that make for peace and prosperity.

"Maize Cobs."—Nothing is more amusing than the way in which English writers blunder over green corn. In an article in a recent "Gardener's Magazine," headed "Maize Cobs," the writer, after giving the opinion that they are a very poor vegetable, gives directions for cooking them. "Put them into boiling water, with a liberal allowance of salt, but no soda. As a rule, 20 minutes fast boiling will cook them thoroughly, but in any case they must be cooked until tender. Drain them, and send them to the table on toast, and accompanied by good melted butter."—The article concludes by saying "they have not the qualities that constitute a truly popular vegetable," which shows that the writer has much to learn about "Maize Cobs," and cooking them.

The Popular Science Monthly, conducted by Prof. E. L. Youmans, and published by D. Appleton & Co., exactly filled a gap in our periodical literature, and while popular in the best sense of the word, presents us with articles by the ablest minds of both continents. Its prosperity is indicated by the publication of a monthly Supplement, half the size of the regular issue, and so wide is the range of articles, that one can hardly fail to find something to interest him in each number.

The Tomato Worm Again.—"Young Farmer," we have to answer your question every year. The large green caterpillar is not an attractive creature, but very amiable towards white folks. It does *not* bite, because it has hasn't any biters; it does not sting, because it hasn't any stinger. The affair on its hinder end is merely for grandeur and good looks. There is only one way to get rid of them, that is to pick them off—with gloves or without, as you prefer. Yes, it is "safe to eat the tomatoes" though your vines may be "full of the worms." The frost has done for the vines this year, but next season, do not let the fear of the worms deter you from saving the vines and the tomatoes.

Newspaper Horticulture. — We thought the "New York Tribune" served out a little the tallest horticulture of any of the city papers, but it is equaled by some one on the "New York Evening Post," which not long ago had the following: "There is at East Windsor, Conn., a flourishing apple tree, sixty years old, that bears good-sized but seedless apples. The seed cells are perfect, but a seed itself has never been found. The deformity is caused, it is said, by the tree growing upside down, having been started by bending the tip of a branch into the ground, and not cutting it from the parent tree until it had taken root." How it must grieve the excellent horticulturist who is at the head of the "Post," to meet such stuff in his own columns.

Grasses Named.—"W. H. C.," Louisville, Ky. The Reed Canary-grass, *Phalaris arundinacea*, a variegated form of which is the Ribbon-grass or striped grass of the gardens. It is not much valued agriculturally. An annual species of the *Phalaris* produces the canary seed...."W. R. F.," Clay Co., Nebraska. Your "Lagoon grass" is apparently a far western form of the Couch grass, *Triticum repens*, but to be sure, we should have a specimen with the root attached. The eastern form of what we take this to be, also called Quack, Quitch, and other names, is often very troublesome in cultivated grounds. It is much relished by cattle and makes good hay, but the servant is too apt to become the master to make it desirable to tolerate it on land to be tilled, but a cattle range is a different matter.

The Southern California Horticulturist.—At last we have something horticultural from California that smells of the soil. The second number of the above named journal is at hand, and we wish not only to give it our hearty welcome, but to especially commend it as just one journal that tells us

what horticulturists are doing in California. A monthly may be filled with quotations from English and other journals, and the reader, unless he sees the title page, can not guess, whether it is published in California, Australia, or Timbuctoo. This is not the case with the journal in question. There are people in Los Angeles Co., and Southern California generally, engaged in the cultivation of fruit and other products of the soil. They have formed the "Southern California Horticultural Society;" this Society meets, its members talk, and talk sensibly, and this journal is their organ, and a very good organ it promises to be. We see San Diego represented in their meetings. Twenty-five years ago in February last, we found ourselves in San Diego; the only houses in the new town were those brought around Cape Horn, and were mere coops; preferring a firm foundation, we put up our tents, and set up housekeeping on the solid earth. After a while some one gave us a map of the place, and by taking observations, we found that we were encamped exactly where the City Hall was on paper. It is, of course, now a prosperous place, and is no doubt most favorable to fruit-growing.

Large Squashes.—John E. Rightmeyer, of Port Jervis, N. Y., claims that he has the "Champion Squashes," at least of Orange County. They were raised by Mr. Ottawa Moore, and weigh 215 and 123 lbs. respectively. Either may be regarded as large, and the heavier one remarkably so.—But how does Mr. R. know that they are not pumpkins?—Don't ask us what is the difference, as that is a conundrum we "gave up" long ago.

Preserving Chestnuts.—Punch's directions for "preserving peaches" was to lock the closet door and lose the key," and in preserving chestnuts for planting you have to guard against dryness, heat, and boys. If allowed to become dry they will not vegetate, and the safest way is to mix them at once with as much or more sand, not wet or yet too dry, but as it comes from a well drained sand bank, and keep them through the winter in a cool place. Worms do not attack the ripe chestnuts; the holes are made, not by worms getting in, but in going out: the egg was laid when the nut was young and soft, and the "worms" are already in them when they are gathered.

"The Scroll Sawyer."—In an article on scroll sawing, on another page, we mentioned that the subject already had a literature; since that was written, we have received the first number of a monthly paper with the above title, published in New York City.

Mr. Rickett's "Lady Washington."—The success of Mr. J. H. Ricketts, of Newburgh, N. Y., in raising hybrid and other new grapes is one of the most remarkable incidents in the horticulture of our times. We have before mentioned the marked excellence of the majority of his new varieties, and would now make a note of one we had not before seen, which he has named "Lady Washington." The berries are of medium size, the bunch above medium, double shouldered, and of the most delicate amber tint imaginable; the fruit, while quite sweet, has more character than is usually found in grapes of its color. If offered in the market the exceeding beauty of the fruit would make a sale for it, were it not half so good. This, if we mistake not, is the result of a cross between Iona and Concord; its foliage is as strongly native as that of any wild grape in the woods.

How long will Pollen keep?—It is probable that the length of time for which pollen will retain its fertilizing properties varies with different plants, as does the vitality of seeds. According to the "Revue Horticole," the pollen of *Ceratozamia Mexicana*, gathered in 1867, was successfully used to fertilize some female flowers in 1872. Of course it must be carefully preserved from dampness.

Orange Marmalade has long been a favorite adjunct to the breakfast of the writer. It was advised during recovery from a long illness, and the taste thus acquired has since often been gratified by the purchase of the only article then known in our stores, the "Scotch Marmalade," made at Dundee, Scotland, from bitter oranges imported from Spain. Not long ago Col. J. B. Oliver, editor of the "Florida New Yorker," who is wide-awake to all that relates to the material prosperity of Florida, made us acquainted with the fact that orange marmalade was made in Florida. It appears that Messrs. Ritchie & Co., experienced makers of the article in Scotland, have established a factory in Florida, utilizing the wild orange, which has heretofore been looked upon as a waste product. Without comparing the two side by side, we think that the Florida marmalade is at least quite equal to the imported. We look upon this manufacture with much interest, as it has already appreciably affected the value of the wild orange groves. Those who have wild orange trees in full bearing, if they can find a market for their fruit at even a low rate, will hesitate to convert them into groves of sweet fruit, which, while it will bring a much higher price, must be waited for, as it will take at least ten years to produce sweet orange trees bearing as abundantly as the well established wild ones. We wish this enterprise much success—and advise our readers when they buy orange marmalade to take the Florida in preference to the Scotch.

Grass for Different Soils.—"L. B. M.," Elmwood, Ill. For land that is partly covered with timber, Orchard Grass should be chosen; where the land is sometimes overflowed, Red Top is most suitable, where it is moist, but not overflowed, try Timothy.

New Zealand Flax.—"Subscriber," at Great Salt Lake City, Utah.—Your signature is not legible, or we should have replied by mail. The New Zealand Flax, (*Phormium tenax*), in its common and variegated forms, is not at all rare in greenhouses, and is often used in sub-tropical groups for decorating lawns. It is hardy in the south of England; how it will be with you can only be learned by experiment. It is generally multiplied by division; in consulting the English and French works on such plants, we find no reference to raising it from seed. Seeds of some related plants, if kept long, germinate very slowly, and if you have a greenhouse, it will be well to sow the seeds at once. If you have no greenhouse, the seeds must be kept until spring, and, as a matter of precaution, we would mix them with twice their bulk of dry sand, and keep in a dry place for the winter. The fibre is very strong, but very coarse, and if your correspondent has seen any "nearly as fine as silk," it was prepared differently from any that we have met with.

Parasite on Owls—"Better Direction."—Every now and then it happens that while we have copied an address exactly as given, a letter comes back marked, "Returned for Better Direction." This does not seem to have much to do with horned owls or their parasites, so we will explain. Almost a year ago Mr. O. Terrell sent us a strange looking insect which he found on the body of a Horned Owl. It being unlike anything we had any account of, we sent it to a gentleman who makes a specialty of the class of insects to which we supposed it belonged; he did not know it, and forwarded the specimen to Baron Osten Sacken, who is distinguished as an entomologist, as well as diplomatist, and he at once gave us the name of the insect as *Olfersia Americana*, with the remark that it was frequently found upon owls. Having the name of the specimen, but nothing of its history, we wrote to Mr. Terrell and his letter came back stamped as above. We take this method of informing Mr. Terrell that we did the best we could for him, and refer to the case just now—when we shall receive letters by the thousand, to enforce upon our friends the necessity for always giving their name and address in full. We have just now taken pains to reply to a letter at length, and find that the only address is Brooklyn, and no means of knowing if the writer is Mrs., Miss, or Mr. Having spent some time over the letter, we at a venture send it to Brooklyn, N. Y., but shall not be surprised to find it "Returned for Better Direction."

Preparing Brine.—"G." When pure salt, such as the Onondaga factory filled or the Ashton salt is used, it is not necessary to boil the brine. Boiling water may be poured upon the salt in a clean tub or barrel, the water should be well stirred, and when cool, the brine should be skimmed. Enough salt should be used to have some left in the bottom of the tub; the brine is then a saturated solution, and as strong as it can be made.

The Best Wheat Growing State.—"E. R. G.," Lancaster Co., Pa. The best spring wheat in the country is grown in Minnesota, and flour from Minnesota spring wheat, brings the highest price of any flour in the market. Just now the most profitable wheat growing is in Central Kansas, where many persons are largely cultivating this crop with considerable profit. There fall wheat is considered a sure crop. These two States just now offer the best inducements for largely and cheaply growing these kinds of wheat.

"Adamant Plow."—"J. G. D.," Corry, Penn., writes that he is dissatisfied with the "Adamant Plow," but does not say who is the maker, nor which "Adamant" plow it is. We feel sure there is some mistake in the case, and that some plow different from that mentioned recently in the *American Agriculturist*, is referred to, because we have been using one all summer, and have lent it to the neighbors so much, that it has been in constant use, and all who have used it agree in thinking it to be an excellent plow of very light draft, and clearing itself perfectly in all kinds of soil.

Catalogues Received.

Catalogues of dealers in all kinds of agricultural and horticultural stock and materials, form a class of literature, that possesses much interest and value. Of late years, instead of being a mere enumeration of the stock for sale, they generally give descriptions of the articles offered—at least of the new ones, and by presenting the author's experience, or methods of culture, are instructive, and we often find in them scraps of information, not to be found elsewhere. Unfortunately, they come in those fall and spring months, when our columns are always crowded, and we are unable to point out, as we should like, the characteristic features of the different catalogues, but must content ourselves with little more than a bare enumeration of them. It will save inquirers much trouble, if they understand that dealers—such as nurserymen, seedsmen, etc.—keep all the regular articles in their line, and unless we indicate that one is devoted to some specialty, it is safe to assume, that any of the standard and established articles in the line of his business, may be had from him. Where a business has several departments so distinct that separate catalogues are issued for each, the establishment is mentioned under the different heads, but where no separate catalogues are issued, the concern is placed under the head of the leading business, and mention made of the other departments.

NURSERYMEN.

GEORGE ACHELIS, Westchester, Pa.—A wholesale list of fruit and ornamental, including evergreen, trees, etc.

BRONSON, HOPKINS & CO., Geneva, N. Y.—General stock, with several specialties, including Russian and other apples of extra hardiness.

BUSH, SON & MEISSNER, Bushberg, Jefferson Co., Mo., make a specialty of hardy grapes, and their autumn catalogue is a marvel of compact description.

J. CAPPS & SON, Mount Pulaski, Ill.—General list, including an immense variety of peaches. They also issue an annual "Journal," filled with interesting fruit talk.

S. C. DE COU, Moorestown, N. J., sends a special strawberry circular, but has a general nursery stock.

ROBERT DOUGLAS & SON, Waukegan, Ill., make a specialty of evergreen and other ornamental tree seedlings. They raise evergreens on such a large scale, and offer the seedlings at such low rates, that it is cheaper, and much safer, for private planters to buy, than to raise them.

ELLWANGER & BARRY, Rochester, N. Y., have a stock so large and varied, that each department requires a separate catalogue, and the whole set bound together, makes a handsome volume. The lists of Fruits and of Ornamental Trees and Shrubs are quite up to the time.

H. M. ENGLE & SON, Marietta, Pa., send a full wholesale list, and offer three new peaches raised by them.

W. L. FERRIS, JR., & CO., Poughkeepsie, N. Y., offer a general stock, with specialties in small fruits, including Mr. Roe's new raspberry and gooseberries, which they grow under an arrangement with Mr. R.

GIBSON & BENNETT, Woodbury, N. J., offer general nursery stock, and as specialties the new strawberries and raspberries of Mr. Felton, which were first brought to notice at the Centennial Exhibition.

A. HANCE & SON, Red Bank, N. J., send a full trade list of nursery and florist's stock, and special list of peaches and strawberries, many novelties in both.

HOOPES BROTHER & THOMAS, Westchester, Pa., in their trade list offer a large assortment in every department of nursery stock, with greenhouse plants besides.

T. S. HUBBARD, Fredonia, N. Y., makes a specialty of grape vines and wood, but has other stock.

J. JENKINS, Winona, Ohio, makes a specialty of grape vines and forest tree seedlings, and has a general stock.

R. S. JOHNSTON, Stockley, Del.—A general wholesale list, very full in peaches of the newer sorts.

H. T. JONES, Rochester, N. Y., offers small fruits of all kinds, including the latest introductions.

WM. S. LITTLE, Rochester, N. Y., sends his wholesale list, which is very full, and includes several specialties in fruit and ornamental trees.

D. S. MARVIN, Watertown, N. Y.—A special list of hardy grapes, and interesting, as it gives the origin of the different native varieties.

S. B. PARSONS & SONS, Flushing, (L. I.,) N. Y.—Besides their retail catalogue, have a wholesale list of their remarkable collection, including camellias and azaleas.

F. K. PHŒNIX, Bloomington, Ill., has a wholesale list, full in every department, and offers special terms to clubs.

THOMAS MEEHAN, Germantown, Pa., offers an immense stock at wholesale rates, and makes a specialty of forest tree seedlings and seeds.

E. MOODY & SONS, Lockport, N. Y.—Though established in 1839, the catalogue shows that this venerable nursery keeps pace with the novelties.

WILLIAM PARRY, Cinnaminson, N. J., besides his regular price-list, publishes "Forty Years Among Small Fruits," in which he gives the results of an experience second, in variety and results, to that of no other.

J. C. PLUMB & SON, Milton, Wis., make a specialty of hardy fruits for extreme northern localities, including several originated by them. Their advice to planters is clear and sensible.

H. M. THOMPSON & SON, St. Francis, Wis., deal especially in evergreen and forest tree seedlings, including the European Larch. Their catalogue is mainly devoted to interesting matter on the importance and profit of tree culture, and is a useful and creditable production.

B. F. TRANSOU & CO., Humboldt, Tenn., offer fruit trees of varieties especially suited to the southwestern climate, and ornamental trees and shrubs.

LEO WELTZ, Wilmington, Ohio, has general nursery

stock, and a special catalogue to the Forest Rose Strawberry, a variety highly esteemed where it has been tested.

E. P. Roe, Cornwall-on-the-Hudson, N. Y., issues a full circular on small fruits, which, like all Mr. R.'s productions, is fresh and interesting.

W. & T. Smith, Geneva, N. Y.—This well known establishment has a full wholesale list in every department.

F. Trowbridge, Milford, Conn., issues his Cranberry circular, and offers some new varieties.

A. R. Whitney, Franklin Grove, Ill.—Mr. W. is known as the originator of several choice Siberian apples, which he offers with other trees.

SEEDSMEN & DEALERS IN BULBS.

The autumnal catalogues of seedsmen are mainly devoted to Dutch bulbs and flower-roots, and to seeds of greenhouse plants. Most of them give full directions for the cultivation of bulbs in the house and in the border.

Beach, Son & Co., No. 7 Barclay St., New York City, present their bulb list in the Oct. No. of the "American Garden," which contains timely and useful articles.

R. P. Critchell, Carthage, Ohio, a descriptive and instructive special bulb catalogue.

W. H. Carson, 125 Chambers St., N. Y. City, in a characteristically neat catalogue, besides bulbs and directions for growing them, offers a full assortment of window gardening appliances, such as brackets, stands, pots, etc.

James Fleming, 67 Nassau St., N. Y. City, was the first to send his autumn catalogue of bulbs and other timely articles.

Peter Henderson & Co., 35 Cortlandt St., N. Y. City, offer, besides a full stock of bulbs, plants for winter-flowering, seeds for fall sowing, and a great variety of horticultural stock.

A. W. Livingston, Reynoldsburg, Ohio, is on hand with his list of vegetable seeds, with the "Acme" tomato as a specialty.

Nanz & Neuner, Louisville, Ky., offer bulbs and other plants for window gardening, seasonable seeds, etc.

Thomas Meehan, Germantown, Pa., sends a full list of seeds of American trees and shrubs, in which, we are glad to learn, he has a large European trade.

F. K. Phœnix, Bloomington, Ill., sends a special bulb catalogue, and a very full one, with a list of winter-blooming greenhouse plants.

J. F. Robey, Buda, Ill., offers western-grown vegetable seeds, flower seeds, and seeds for the farm.

J. M. Thorburn & Co., 15 John St., N. Y. City.—No bulb list exceeds this in fullness and value of its contents. Seeds for autumn sowing, grass seeds, etc., are offered.

James Vick, Rochester, N. Y., is always expected to do something surprising; he issued his heretofore remarkable catalogue as a quarterly, and now promises, in 1878, a monthly. Nothing succeeds like success.

FOREIGN.

Anderson & Co., Sydney, New South Wales, publish a supplementary list to their general catalogue, which for neatness and tasteful arrangement might be studied by dealers in older countries, while its offer of the newer American potatoes, Prickly Comfrey, etc., shows that our insular friends are not at all behind the times.

Wm. Bryce & Co., Glasgow, Scotland, and London, Eng.—Wholesale dealers in vegetable, agricultural, and tree seeds.

Wilson & Rankin, Glasgow, Scotland.—A wholesale list of agricultural and garden seeds.

FLORISTS—GREENHOUSE PLANTS.

L. B. Case, Richmond, Ind., issues his catalogue in the form of a quarterly, entitled the "Botanical Index," which promises to be useful to plant collectors.

Peter Henderson, 35 Cortlandt St., N. Y. City, in addition to his general plant catalogue, has a list of plants to flower in the parlor or greenhouse during the winter.

Tyra Montgomery, Mattoon, Ill.—Special rose and geranium catalogues, and one of general greenhouse stock.

George Such, South Amboy, N. J., in his autumn catalogue presents the latest additions to his remarkable collection of greenhouse and stove plants. The neatness of the catalogue is in keeping with the select character of its contents.

A. Troth, Memphis, Mo., presents his catalogue as a quarterly, and offers greenhouse plants and seeds.

MISCELLANEOUS.

Bees.—*J. H. Nellis*, Canajoharie, N. Y. Swarms, queens, and aparian supplies generally.

L. C. Root, Mohawk, N. Y.—Bees and queens, sample hives, smokers, extractors, and all bee-keepers' supplies.

Giant Powder.—*The Atlantic Giant Powder Co.*, 61 Park Place, N. Y. City, publish an account of the powder (Dynamite), and tell how to use it.

Optical Instruments.—*T. H. McAllister*, 49 Nassau St., N. Y. City, offer everything in their line, from a small microscope up to a large stereopticon.

Ornamental Iron Work.—*The Racine (Wis.) Hardware Manufacturing Co.* make ornamental house-furnishing goods, florists' baskets and brackets, window gardens, aquaria, and other articles in great variety. G. W. Peck, 110 Chambers St., is the New York agent.

Scroll Saws and Materials.—*G. Webster Peck*, 110 Chambers St., New York City, issues a very full catalogue of saws of all styles, woods, patterns, and everything required in scroll sawing.

Silk.—*L. S. Crozier*, Williamsburg, Manhattan Co., Kas., at Silkville, in the above town, carries on successfully the raising and the manufacture of silk. His circular gives information to those who would purchase eggs, and offers several varieties of the Mulberry.

Reports of Societies and Others.—Reports of Societies, Boards of Agriculture, and others, form a class of literature the character of which has been much improved of late years. Instead of the long and dreary essays formerly published, and which were of no other use than as padding, we now have reports of what was done and said, and unless of real value, only a brief abstract is given. These reports increase in value with time, and form an important part of a library for reference. Our limits do not allow of extended reviews of such publications, and we can give only a brief acknowledgement, at the same time expressing to the Secretaries and others our thanks for their courtesy in sending them.

The Aberdeenshire (Scotland) Ag'l. Association's report for 1876, is largely devoted to an account of elaborate experiments with the turnip crop, and illustrated.

The Journal of the Agl. Society of New South Wales. Part 3, July, 1877, naturally gives much space to sheep and wool.

The Kansas State Board of Agriculture issues Monthly Reports, which show how fortunate it is in having such a Secretary as Alfred Gray, Esq.

North Carolina's Commissioner of Agriculture, the Hon. Leonidas S. Polk, in his first quarterly report, shows that the State is on the right track in its agricultural matters.

The Report of the Connecticut State Board of Agriculture, by its Secretary, T. S. Gold, Esq., for 1876-77, maintains its excellent character. It includes the report of the work at the Experiment Station, by Prof. Atwater.

The U. S. Entomological Commission, consisting of Profs. Riley, Packard, and Thomas, have issued several bulletins giving the progress of their work, and conveying useful information, especially with reference to the Locust or Grass-hopper.

Destructive Insects of the Far West, including the Locust, are fully treated in Prof. A. S. Packard's report as Entomologist of Hayden's Geological Survey, and published by the Department of the Interior, in a separate, well illustrated volume of over 200 pages.

The Maine Pomological Society, in its report for 1876, gives carefully digested fruit lists of great local value, and papers and discussions of interest. It is fortunate in having in Mr. Geo. B. Sawyer, a most efficient Secretary.

The Ohio Horticultural Society sends its 10th Annual Report. As John A. Warder is President, and M. B. Bateham Secretary, it is sure to have much of value.

The Wisconsin State Horticultural Society's Report for 1876, and the Winter Meeting of 1877, shows that this is in no respect behind older associations in the interest of its transactions. A marked feature is the number of ladies who take an active part, more than one-third of the papers presented at the annual meeting, were by ladies.

Sewing Machines—Wilcox and Gibbs'.—This machine has been so long in use, that the time has gone by when it needs commendation, for in its original form it is as well known in families as any other machine. It is not too late to call attention to their new improvement, which is applied to their "Automatic Silent Sewing Machine." A description of this, together with what the makers propose, in view of the general reduction of prices by all the sewing machine companies, may be learned by sending to the Company (658 Broadway) for their circulars, which give full details.

Cure for Scab.—"J. W. D.," Lewiston Co., Texas. Kerosene oil is not a proper or safe cure for scab. A better application is Buchan's Carbolic Sheep Dip, or some others, described fully in Stewart's "Shepherd's Manual, (price $1.50). A cheap and good dipping arrangement is described in the same book. Every owner of sheep should have this manual, which is an American work designed for American shepherds.

Paralysis in Pigs.—"W. W. M.," Greenwood, Del. Young pigs are not unfrequently troubled with paralysis of the hind-quarters, or, as it is called, paraplegia. This disease has several causes; disordered digestion, nervous weakness, parasitic worms in the fatty tissues of the loins, or rheumatic affection, all produce it. A good remedy, in either of these cases, is to rub the loins with turpentine, and to give a few doses of one ounce of linseed oil with one teaspoonful of turpentine in each.

The Best Fodder Cutter.—"T. S. C.," Painesville, O. It is difficult to say which is the best. There are many good ones, and several of them were recently illustrated in the *American Agriculturist*. We use the Baldwin fodder cutter, made by C. Pierpont & Co., New Haven, Ct., and find it everything that can be desired.

New Hay in the Barn.—"E. D. S.," Spencertown, N. Y. Hay should not be put in the barn when wet with dew or water. If there is a little sap left in it, it will not matter much, if the barn is well ventilated. All hay and grain, when newly mowed away in a barn, undergoes a process of sweating, which is a fermentation of the sap left in it, a consequent heating, and evaporation of the moisture. If part of this moisture is carried off by means of good ventilation, the mass cools down, some of the dampness is absorbed again, and the hay or straw is left bright and sweet; otherwise it mildews. A tightly closed barn will cause mildew, because the moisture can not escape, and the contents become damp, not being able to absorb all the vapor. 100 lbs. of "air-dry" hay contain 14 lbs. of water; if more is left in it, it is damp, and must be injured by mold or mildew. A brisk current of air will carry off this excess of dampness; therefore we advise that the barn-doors be left open, when a brisk dry wind is blowing.

Some Western Cattle Men.—The business of raising sheep and cattle on the great western plains, is not only one of agreeable and healthful excitement, but when judiciously managed, is very profitable. Many young men from eastern cities are now engaged in this adventurous business. Amongst others might be mentioned Prof. Clarence King; Charles Motley, a nephew of the late J. L. Motley, the historian; L. C. Briggs, son of a Boston merchant; Wilbur Raymond, B. A., who is a nephew of the senior publisher of the *American Agriculturist*; Galusha A. Grow, Jr., and a nephew of Sidney Dillon, of the Union Pacific Railroad. All these young men are successfully engaged in their business during the summer, some of them leaving their herds in the winter, to make a visit eastward. There are abundant openings in Colorado, Kansas, Wyoming, and other localities, for the employment of industry and capital in this way.

Sheep in Colorado.—Figures from a trustworthy source—the books of the Assessor of El Paso Co., Colorado—show that the number of sheep in that county have greatly increased since 1872. Thus:

Number of sheep returned in			1872	37,000
"	"	"	1873	50,000
"	"	"	1874	58,000
"	"	"	1875	65,000
"	"	"	1876	74,000
"	"	"	1877	102,000

These figures show that the business is successful, notwithstanding failures of persons who have displayed remarkable ignorance and stupidity in their management of their flocks. Although there is a promising field for sheep in Colorado, judgment and common sense are necessary for success in herding and general management.

Brahmas for Eggs.—"J. H. J.," Keyport, N. J. The Brahma fowls are not the most desirable for eggs alone. There are other breeds that are more prolific in that way. But for both eggs and flesh, and their very quiet disposition altogether, they are perhaps the best farmers' fowl. The past three months is the moulting season, and hens that are growing their new plumage do not lay. If you want eggs and nothing else, you should keep either White or Brown Leghorns.

To Cure Egg Eating Hens.—"E. A. G.," Yostville, Pa., recommends that the shells of all the eggs used through the summer, be saved and given to the hens in the winter, when they will not care to break eggs. I may be worth while to try this method, but we have not much confidence in it. Hens may be prevented from breaking eggs by cutting off or filing the points of their beaks square. This does not prevent them from picking up their food, but when the hard points are removed they can not use their bills for breaking up anything.

The Cost of Producing Wheat.—"M. F.," Belair, Md. To know precisely the cost of a bushel of wheat, is a very simple thing; nothing more being required than to keep an exact account of all labor, seed, and fertilizers employed. The proportion of manure used up by the crop may be a matter of fact or of estimate. The following, copied from our farm account book, shows precisely what our fall-sown wheat costs up to the present time for one field of six acres, viz.:

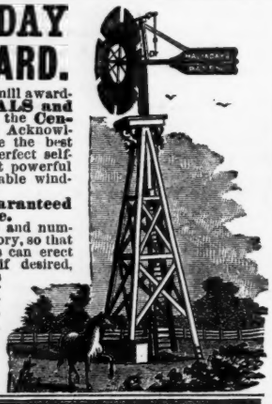
Plowing, 5¾ days, at $2.00	$11.50
Harrowing, ½ day	1.00
9 bushels Clawson wheat, @$2.10	18.90
Drilling 6 acres, @ 50 cts.	3.00
600 lbs. Ville's Complete Manure	15.00
Total	$49.40

This is very plain and easy to do, and yet not one farmer in a thousand keeps any such account. But it is absolutely necessary for the most profitable farming, to know what different crops cost.

To Remove a Wart by Acid.—"J. F.," Huntsville, Ala. To succeed in removing a wart by acid, the application must be continued until the wart is entirely eaten away, and a raw spot is left. This must be kept from bleeding by styptic or drying substances, such as powdered copperas, sulphate of copper, or a solution of sugar of lead, until the wound is gradually healed.

Buckwheat Bran for Cows.—"B. & W.," New Market Junction, N. H. Buckwheat bran when fed to cows, causes an increased flow of milk of a poor quality, giving very white butter. Otherwise it is a serviceable feed, but not nearly so valuable as wheat bran.

HALLADAY STANDARD.



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Every Mill Guaranteed as above.

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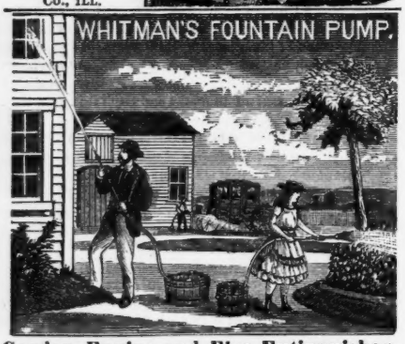

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Protects Buildings from Fire, and Trees, Vines, etc., from Insects. Throws water 50 ft. Easily carried. No Dwelling, Country Home, or Factory, should be without the Fountain Pump. See description and illustration pages 178 and 180, *Am. Agriculturist*, May, 1877. Send for large Illustrated Circular. **J. A. WHITMAN,** Sole Proprietor and Manufacturer, **Providence, R. I.**

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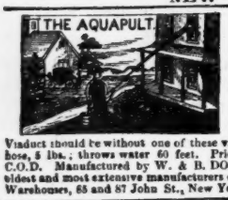

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(Six extra needles sent with each machine.)

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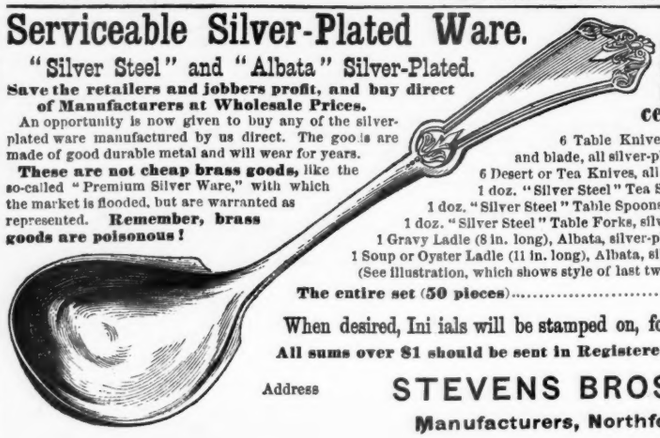

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The Best and Cheapest.

BUCHAN'S Cresylic SHEEP DIP.

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A Saponaceous Compound with Cresylic and Carbolic Acid.

For Preventing and Curing the Scab and all parasitic diseases of the Skin. Will destroy Lice, Ticks, Fleas, &c.

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This Preparation is Warranted to be **entirely harmless** and **free from all poisonous** Compounds, and will positively do all that we claim for it. Put up in packages of 1, 5, 10, 50, 100, and 200 pounds.

Buchan's Cresylic Ointment.

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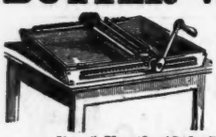

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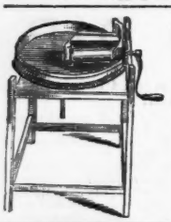

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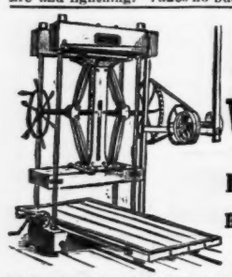

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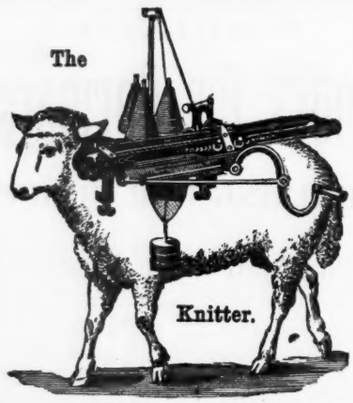

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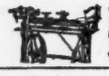

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Sole Agents for Alex. Hornby's Steam-cooked White Wheat and Oat Meal. **No. 279 Washington-st., N. Y.** (Est'd 1845.) Ref., *Irving National Bank*, New York City.

RUFUS L. COLE, PRODUCE COMMISSION MERCHANT,
141 Reade St., New York. *Established in* 1852. Market reports and shipping directions sent *free* on application.

MRS. OLD FOGY DOES NOT USE THE ROBBINS WASHER. | MRS. COMMON SENSE DOES. TAKE YOUR CHOICE.

TO MAKE MONEY
SECURE AN AGENCY
FOR THE
CELEBRATED
ROBBINS FAMILY WASHER.

This machine has been ON TRIAL for the past six months in every State and Territory in the Union, and the almost unanimous verdict of housekeepers is this: **"Your Washer has proved a complete success."** Some of the reasons why this popular verdict has been reached may be found in these facts:

The Robbins Washer is an entirely NEW MACHINE. It is constructed upon a NEW PRINCIPLE—that of forcing water by downward pressure through the fabric. The dirt or discoloration is removed by water force—there is no rubbing or friction about it. This principle is the only one that has ever been successfully applied to the cleaning of fabrics by machinery. All others have failed in one or more essential points. The Robbins Washer will cleanse perfectly, without rubbing, all kinds of wearing apparel, table or bed linen. It will not injure the most delicate fabric. It is the greatest bleacher extant, and for this purpose alone is worth ten times the price of the machine. It is simple, self-operating, never gets out of order, and will last a lifetime. It saves time; it saves labor; it saves material.

By purchasing a ROBBINS WASHER you can count the hard drudgery of the washboard among the things of the past.

Therefore, we confidently say to every housekeeper in the land, You want a ROBBINS WASHER. You cannot afford to be without one. It will pay to buy one.

THE RETAIL PRICE IS ONLY **$3.50.**

Sample to those desiring agencies, $3.

In bringing the Robbins Washer before the public it becomes necessary to take into brief consideration the

ART OF CLEANSING FABRICS,

which, although so common, is yet imperfectly understood. Having had a lifelong experience in the laundry business—in connection with first-class hotels, public laundries, asylums, hospitals, &c.—we know whereof we speak. The numerous devices of friction rollers, pounders, squeezers, dashers, agitators, steam wash boilers, &c., have all done very well, so far as it was possible for such principles and devices to do. But they have all failed in one or more of the three essential points, viz.: The saving of labor, the wear and tear of clothes, or in perfectly extracting the dirt or discoloration—all of which are accomplished by the ROBBINS LITTLE WASHER.

WHAT IS IT THAT REMOVES THE DIRT?

You may ask all washerwomen and housekeepers, and your answer from nine out of ten will be: "Plenty of elbow grease;" or, in other words, plenty of hard, laborious rubbing on the washboard. And such is the case, for you first have to rub soap upon the cloth, then you have to rub it in to make the dirt soluble. But does that remove it? No; to do that you must first dip it in the water, and then rub it in again to force water through the fabric. That is what removes dirt after being softened by the chemical action of the soap upon it.

The way in which this could be the most economically accomplished is what we have so long and patiently sought after, and at last a principle has been developed in the LITTLE WASHER that embodies all the above-named points.

THE PRINCIPLE OF THE LITTLE WASHER

embodies all the essential points. First, we have the desired heat, which expands the fabric and causes it to discharge the dirt. Second, we obtain a powerful suction beneath the clothes, which causes a rapid downward current of water force through and through them, thereby removing the dirt. Third, we use a large body of water, which holds the dirt in solution. Thus we cleanse thoroughly, rinsing the clothes as usual being all that is required to complete the operation.

The Washer is composed of solid galvanized iron, which will not rust or corrode. There are two sizes—the No. 1, or family size, for ordinary household use; and No. 2, or hotel size, suitable for country hotels, boarding-houses, laundries, &c.

OUR METHOD OF HANDLING.

We want agents everywhere throughout the United States, in every State, country, town, and hamlet. The retail price of No. 1 Washer is $3.50; of No. 2 Washer, $5. But we sell sample machines of No. 1 size at $3; No. 2, or small hotel size, at $4. Canvassers for this Washer can make more money with it than with anything ever before offered to the public. As, for instance, we established two agencies to test the sale of the Washer upon its merits—one in Naugatuck, Conn., and one in Providence, R. I. The former, Mr. Charles Daniels, in a town of about 2,000 inhabitants, sold by canvassing in two weeks 82 Washers. In the latter place Mr. James Roberts, now of Naugatuck, Conn., sold in less than three months, without canvassing or advertising outside the store, over 500 Washers. A thing never before heard of.

TO PERSONS OUT OF EMPLOYMENT

we would say, if you want to secure a paying business, now is your time. Don't wait till the best territory is taken up, but send at once for sample machine and go to work. By following instructions you can sell to nearly every family in your neighborhood. Others have done it, and there is no reason why you should not. Full directions and instructions accompany each machine. Also, special terms to agents, circulars, testimonials, &c.

We also sell in connection with our Washer the "Reliance" Wringer, one of the very best make. The retail price is $7.50. Will send sample for $7, or sample Wringer and Washer together for $9.50

All orders must be accompanied with cash.

Remit by money order or registered letter to

THE GEO. D. BISSELL COMPANY,
Naugatuck, Conn.

P. S.—We send the Washer to any part of the Union on receipt of price.

Mention this paper.